2023 Annual 1041 Permit Report

Chaffee County Spring Water Project

Prepared by

BlueTriton Brands, Inc.

March 1, 2024

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List of Exhibits

Certification of Annual Report

BlueTriton Brands, Inc. (BTB) is pleased to submit this *1041 Permit Annual Report* for calendar year 2023 to Chaffee County in compliance with Condition 4.7 of Chaffee County Resolution No. 2021-58 (herein “the Permit”), and by signing below, we certify that the information contained herein represents BTB’s activities in Chaffee County and demonstrates BTB’s continued compliance with its Permit in 2023.

We look forward to the opportunity to present our 2023 Annual Report to the Chaffee County Board of County Commissioners and appreciate our continued partnership in the County. If the County needs clarification of the information presented herein, or additional information to meet compliance with the 1041 Permit Condition for Annual Reporting, please contact us.

Sincerely,

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Executive Summary

BlueTriton Brands, Inc. (BTB) was granted an Extended 1041 Permit by Chaffee County (County) on August 3, 2021, to continue operating a spring water withdrawal and transport project at the Ruby Mountain Springs in Chaffee County, with conditions and regulations as outlined in Resolution No. 2021-58. The resolution was adopted and approved on August 3, 2021. It was recorded by the County Clerk on August 4, 2021. The original 1041 Permit was granted on September 23, 2009, and since that time, BTB (formerly named Nestlé Waters North America [NWNA]) has been operating its Project in compliance within the terms of the Permit.

In accordance with Section 4.7 of the 1041 Permit, BTB must submit an Annual Report to Chaffee County that documents compliance and demonstrates its operations and activities in Chaffee County are being conducted according to the terms of its Permits. This *1041 Permit Annual Report* covers BTB's operations and activities during the calendar year from January 1 through December 31, 2023 (Reporting Period), except for the Hydrogeological Monitoring report Exhibit that is required to be reported for the water year (November 1 through October 31). For continuity, this report may contain information addressing BTB's compliance with all requirements specified in the Permits for the Reporting Period as well as compliance to date.

For 2023, BTB continues to be in compliance with its Permits, with noted exception of Condition 4.17 local advertising, which BTB intends to rectify in 2024, and continues to support local agencies and the public interest in Chaffee County. Examples of BTB's support of Chaffee County conducted in 2023 are highlighted below.

- BTB exhibits its commitment to the conservation of our Bighorn (BHS) and Ruby Mountain Springs (RMS) properties having established a permanent Conservation Easement through Colorado Parks and Wildlife (CPW). The work undertaken by BTB and CPW is discussed under Section 4.44 of this report. BTB has established an additional public fishing access point on its property for the enjoyment of the public, with a ribbon cutting ceremony held on September 8, 2023.
- BTB and the Upper Arkansas Water Conservation District (UAWCD) continued their collaboration on the Trout Creek Alluvial Storage project (e.g., sharing of hydrogeological data, allowing access during the intra ditch exchange and pipeline easement sharing).
- BTB supports the Chaffee County community through philanthropic donations to local organizations and causes, and employment of local workers.
- BTB has established a Right-of-Way (ROW) easement for the County Road 300 (CR 300) expansion project, collaboration and all necessary land improvements associated with the project. BTB modified the Conservation Easement so it didn't impede the CR 300 expansion project and BTB continues to cooperate with the County in the ongoing CR 300 expansion project.

Acronyms

BHS	Bighorn Springs
BOCC	Board of County Commissioners
BTB	BlueTriton Brands, Inc.
BVCEAF	Buena Vista Community Education Assistance Fund
CCCF	Chaffee County Community Foundation
CCEDC	Chaffee County Economic Development Corporation
CCHA	Chaffee County Housing Authority
CDOT	Colorado Department of Transportation
CE	Conservation Easement
CEMP	Conservation Easement Management Plan
CPW	Colorado Parks and Wildlife
CR300	County Road 300
DWR	Division of Water Resources
ELD	Electronic Logging Devices
gpm	gallons per minute
IRP	International Registration Plan
NFF	National Forest Foundation
NWNA	Nestlé Waters North America
RMS	Ruby Mountain Springs
RREO	Recycling Resources Economic Opportunity
SGWMPP	Surface- and Ground-Water Monitoring and Mitigation Plan
SOSS	Support Our Schools Salida
SWA	State Wildlife Area
SWSP	Substitute Water Supply Plan
TU	Trout Unlimited
UAWCD	Upper Arkansas Water Conservancy District
USACE	U.S. Army Corps of Engineers

Compliance with 1041 Permit Conditions

BTB's activities conducted in 2023 are detailed below, demonstrating compliance with the 1041 Permit conditions. The *1041 Permit Annual Report* is organized by Permit condition number[1] as listed in Chaffee County Resolution No. 2021-58. Exhibit 1 is a table that identifies the Permit Condition related to each applicable regulation to better correlate the County's 1041 Regulations with the current Permit conditions for ease of reference.

4.1 Scope of Extended Permit

Condition is County proviso. No submittal is required.

4.2 Technical Revision or Extended Permit Amendment

The County extended the Permit by a resolution adopted and approved on August 3, 2021. It was recorded by the County Clerk on August 4, 2021. No other technical revisions or Permit amendments were requested by BTB in 2023.

4.3 Dispute Resolution

There are no BTB-County disputes, and no submittal is required.

4.4 Term of Extended Permit

The 10-year term of BTB's Chaffee County 1041 Permit Resolution No. 2021-58 is currently in effect, valid through August 3, 2031. BTB is in compliance with the Extended Permit.

4.5 Transfer of Permit

BTB does not request a transfer of, nor has it transferred, its rights under this Permit to any parties.

4.6 Extended Permit Violation

BTB has not been notified by Chaffee County, or any other permit authority, of any violations of permits.

4.7 Annual Reporting

This report is submitted to Chaffee County for calendar year 2023 in compliance with this condition.

4.8 Financial Security

The County continues to maintain the Reimbursement Fund funded by BTB to cover County costs associated with administration of BTB's 1041 Permit. Details for the Cost Reimbursement Fund are provided in Section 4.10. There were no construction

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[1] For example, Permit Condition 4.13 requires BTB to continue to maintain the hatchery restoration project. Under Section 4.13 of this Annual Report, BTB details the current work undertaken by BTB to comply with this Permit condition.

or maintenance tasks related to the operation of the project in excess of $250,000 conducted in 2023.

4.9 Compliance with Other Permits

BTB is, and has been, in compliance with all other County, State, and Federal permits and approvals associated with its Chaffee County operations issued to date.

4.10 Cost Reimbursement Fund and Application Review Costs

BTB has maintained its Cost Reimbursement Fund balance per County requirements and provided additional fund deposits upon County request. The table below outlines the usage and ending balance of the Reimbursement Fund in 2023, as provided by the Chaffee County Finance Director. The County did not request additional funds from BTB in calendar year 2023.

Summary of Reimbursement Funds	
Beginning fund balance 2023	*$248,134*
Interest	$11,488
Payment of outside legal and consultant fees	($8,786)
Reimbursement for County staff time (finance, legal, administration)	($11,649)
Ending fund balance 2023	*$239,188**

*Figures in this table are rounded to whole dollar amounts; therefore, the column may not sum to exactly 100% of total.

4.11 Bighorn Springs (BHS) Land Management Plan

Chaffee County approved the *Bighorn Springs Parcel Land Management Plan* (NWNA, 2010) on May 5, 2010. The following summary and supporting documents satisfy the requirements of the plan for calendar year 2023.

In 2023, BTB's ecological consultant, AlpineEco, has begun to provide one comprehensive report for the BHS property including results of monitoring wetlands, uplands, grazing management, and weed management, according to the requirements of the approved *Bighorn Springs Parcel Land Management Plan* (NWNA, 2010). This combined report, the *Bighorn Springs State Wildlife Area 2023 Monitoring Report* (Exhibit 2), incorporates data previously presented as three individual reports in prior years (formerly Exhibits 2, 3, and 4, where relevant to the BHS). The Bighorn Springs State Wildlife Area (SWA) includes the north section covering the BHS area and the south section covering the RMS area. This approach is to provide a more comprehensive review of the wetlands, habitat, and aquatic conditions for the property and is aligned with the objectives of the BHS Conservation Easement.

BHS Bighorn Sheep Habitat Protection

Land east of CR 300 has been left undeveloped and ungrazed by livestock for wildlife movement and protection of bighorn sheep habitat. Wildlife-friendly fencing has been installed on the parcel in areas where the public is allowed to access the river and along the west side of the county road right-of-way.

BHS Grazing and Fencing

The Agricultural Grazing/Crop Agreement, established in May 2019, is set to expire with McMurray Land & Livestock (the lessee) in May 2024. BTB does not intend to renew this lease in 2024. The BHS property was not grazed by cattle in 2023 to allow the land to stabilize and revegetate. Wildlife grazing by a herd of bighorn sheep was observed on the conservation easement. Based on quantitative analysis conducted in 2023 and detailed in the *Bighorn Springs State Wildlife Area 2023 Monitoring Report* (Exhibit 2), prepared by Alpine Ecological Resources, LLC (AlpineEco), grazing at BHS is not recommended in 2024 to prevent further disturbance to the soil and vegetation, and to allow the uplands to continue to recover. BTB and CPW will continue to evaluate grazing the land in the future, dependent on 1) if the land has stabilized enough for grazing, 2) whether there are available livestock, and 3) if other options need to be considered to improve soil and vegetative health.

BHS Weed Management

In coordination with the Chaffee County Weed Department, BTB implements various management actions to help restore and maintain a healthy native vegetation community on its parcels. The *Bighorn Springs State Wildlife Area 2023 Monitoring Report* (Exhibit 2), prepared by AlpineEco, details the previous years' noxious weed inventory and mapping, management, and removal activities, and provides recommendations for future actions to meet the management goals. BTB retained local contractors to perform weed eradication, treatment, and mitigation at BHS during four (4) mobilizations in the summer and fall of 2023.

- From June 6 through June 9, Southwest Conservation Corps (SCC), a community service group based in Salida, mobilized a crew of 6-7 adults to complete weed removal at both the RMS and BHS properties.
- From August 29 through September 1, a second SCC adult crew mobilized to perform general site maintenance in preparation for the Conservation Easement opening. The priority was to clear and trim overgrown vegetation along both the BHS and RMS fishing access trails and the crew removed any noxious weeds visible near the trails.
- From August 24 through August 26, Rhoades Construction, a Chaffee County contractor, was hired by BTB to cut and remove dense willows along the trails in preparation for the Conservation Easement opening.
- On September 26, Kayla Malone and Larry Walker, Supervisor and Advisor with the Chaffee County Weed Department, performed noxious weed treatment by

applying Milestone herbicide[2] on Canada Thistle. Canada Thistle had previously been treated with Milestone at both the RMS and BHS parcels; however, it had not yet shown sufficient infection at the BHS site, so it was recommended to re-apply.

Additionally, according to the Chaffee County Road and Bridge Superintendent, the County applied dust suppression on CR300 adjacent to the BHS Parcel on May 31, 2023.

BHS Wetlands Protection

The *Bighorn Springs State Wildlife Area 2023 Monitoring Report* (Exhibit 2) summarizes the long-term wetland monitoring and management activities on the parcel and details the methodology for evaluating the vegetation coverage. In summer 2023, 14 established transects were studied to measure the percent foliar cover of vegetative (native and non-native) species, and 12 permanent photo points were reviewed compared to past years. Four photo points were added in 2023 for a total of 16 in the BHS area. Results of qualitative and quantitative analyses, conducted in July and November 2023 by AlpineEco, indicate the sitewide wetland vegetation coverage is stable and slight changes in vegetation cover are attributed to changes in upgradient irrigation surface water discharge practices. Since monitoring began in 2008, there have been no significant changes in seasonal groundwater trends (timing of seasonal fluctuations) and there has been a slight decreasing trend in shallow water levels and springs discharge consistent with reduced upgradient agricultural irrigation practices. However, in 2023, there was an increase in overall vegetation density at the wetlands and uplands areas, and water levels and springs discharges were average or above average. There were no observed impacts to the BHS wetland due to pumping at RMS.

BHS Public Access and Conservation Easement

BTB provides overland public fishing access through its BHS property and has established a permanent conservation easement on the property with CPW. Details about the agreement terms, site conditions, land management practices, educational opportunities, and easement operational recommendations are provided in Section 4.44 below.

4.12 Ruby Mountain Springs (RMS) Land Management Plan

The County approved the *Ruby Mountain Springs Parcel Land Management Plan* (NWNA, 2010) on May 5, 2010. The following summary and supporting documents satisfy the requirements of the plan for 2023.

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[2] Diluted Milestone (7oz to 24 gallons of water per acre) was applied using a backpack sprayer. The spot treatment application took place according to the label and was targeted through spraying at the rosettes during the fall bolting stage which occurs in mid-September. Precautions were taken to minimize risk to fish through careful application using a backpack sprayer, only spraying just until wet instead of dripping, and not applying to plants with roots submersed or in contact with surface waters.

Similar to BHS, in 2023, AlpineEco has begun to provide one comprehensive monitoring report for the RMS property included in the *Bighorn Springs State Wildlife Area 2023 Monitoring Report* (Exhibit 2), which was historically presented as three individual reports in prior years (formerly Exhibits 3, 4, and 5, where relevant to the RMS). This approach is to provide a more comprehensive review of the wetlands, habitat, and aquatic conditions for the property and is aligned with the objectives of the BHS Conservation Easement.

RMS Bighorn Sheep Habitat Protection

Land east of CR300 has been left undeveloped and ungrazed by livestock for wildlife movement and protection of Bighorn Sheep habitat. Wildlife-friendly fencing has been installed along the west side of the county road right-of-way.

RMS Grazing

Livestock grazing is not permitted on the property throughout the year, in accordance with the plan.

RMS Weed Management

In coordination with the Chaffee County Weed Department, BTB implements various management actions to help restore and maintain a healthy native vegetation community on its parcels. The *Bighorn Springs State Wildlife Area 2023 Monitoring Report* (Exhibit 2) details the previous years' noxious weed inventory and mapping, management, and removal activities, and a summary of observations. The noxious weed reduction efforts conducted in 2021 and 2022 greatly reduced populations List C species at RMS. Prior biological control efforts (i.e., application of rust fungus to Canada Thistle in September 2021) are recommended to be left undisturbed for three to four years. BTB retained a local contractor to perform other noxious weed eradication and mitigation at RMS during two (2) mobilizations in the summer and fall of 2023.

- From June 6 to June 9, SCC completed weed removal at both RMS and BHS sites.
- From August 29 to September 1, a second adult crew from SCC performed general site maintenance in preparation for the Conservation Easement opening. The priority was to clear and trim overgrown vegetation along both the BHS and RMS fishing access trails and the crew removed any noxious weeds visible near the trails.

RMS Wetlands and Wildlife

Long-term qualitative monitoring of the RMS parcel has been conducted since project operations began. Details regarding the monitoring method and land management activities implemented this year are presented in the *Bighorn Springs State Wildlife Area 2023 Monitoring Report* (Exhibit 2). In July and November 2022, wetlands inspections were conducted by AlpineEco. The wetlands are being managed to enhance recreational and educational use. Overall, "healthy and productive native plant communities prevail", with the vegetation consisting "almost exclusively of native species". Since the rehabilitation in 2012, there has been a slight decline in seasonal groundwater and springs water levels; however, overall vegetation coverage and springs discharge increased in 2023, and there are no observed impacts to the wetland due to pumping operations.

In 2023, various vegetation-focused actions were performed on the parcel to promote natural revegetation and wetland health, including the following:

- Active and on-going willow removal was implemented as a management strategy to prevent dense vegetation from inhibiting access to walking paths and ponds and reduce competition for other native vegetation;
- Removal of noxious weeds and miscellaneous debris; and
- Support and promote natural revegetation and habitat for fish through maintaining recently planted vegetation (i.e., in late fall 2021, wet and dry grass seed was spread to increase competition with noxious weeds and 20 Narrow-Leaf Cottonwood trees were planted to increase shade on the ponds to reduce algae growth and provide shade shelter for fish).

In May and August 2023, BTB contracted a local wildlife specialist, in accordance with CPW regulations, to trap and remove beavers from the reconstructed channel/pond system. One beaver was removed in May and two in August. Beaver relocation is necessary due to repetitive damming of the channel, which in prior years has caused water flow over the berm and directly to the adjacent river (i.e., bypassing the required flow measurement station at the lower weir).

4.13 Hatchery Restoration and Wetlands Maintenance

Former Hatchery Restoration Project Background

On April 26, 2010, Chaffee County approved the *Ruby Mountain Springs Hatchery Restoration Plan (CMC, 2010)*, prepared by Colorado Mountain College Natural Resource Management (CMC NRM). CMC NRM completed a site inventory and documented site conditions on July 1, 2010. Subsequently, all buildings (residential and hatchery related) and associated non-fixed equipment and structures were removed. Fish were also removed from the hatchery ponds and raceways at the request of the CPW.

After completing a review process with stakeholders and the County, the *Ruby Mountain Springs Hatchery Reclamation Plan* (CMC, 2012) was approved. BTB (formerly NWNA) received a U.S. Army Corps of Engineers (USACE) Nationwide 27 Stream and Wetlands Restoration Permit on February 1, 2012, and construction of the reclamation project was completed by the end of 2012. Sufficient success of the reestablished habitat was observed such that the USACE closed out its reclamation permit ahead of the full monitoring term. The USACE performed a final inspection of the restored habitat in the fall of 2013 and BTB received a letter from the USACE dated February 7, 2014, confirming closure of this permit.

2023 RMS Wetlands Monitoring Results

The restored habitat has been monitored since 2014 to evaluate the success of revegetation and function of created habitat, and the results have been outstanding.

Details on the conditions of the RMS wetlands are provided in the *Bighorn Springs State Wildlife Area 2023 Monitoring Report* (Exhibit 2).

2023 RMS Wetlands Maintenance

As in previous years, maintenance and improvement work at the former RMS hatchery restoration site was completed. In 2023, upkeep of the former hatchery area included clearing noxious weeds from the property and trimming overgrown willows that impaired access to the walking paths and ponds.

- From June 6 to June 9, the SCC crew repaired 16 feet of barbed wire fence and removed 100 cubic feet of watercress from the RMS conveyance channel.
- From August 29 to September 1, a second adult crew from SCC performed general site maintenance in preparation for the Conservation Easement opening, including clearing and trimming dense vegetation along both the BHS and RMS fishing access trails, and removing 50 feet of willow brush on the RMS trail, and pulling 50 square feet of algae from the RMS pond.

4.14 Wetlands and Groundwater Monitoring and Mitigation Plan

The Surface and Groundwater Monitoring and Mitigation Plan (SGWMMP), prepared by AECOM on behalf of NWNA in 2010, outlines the hydrogeological and flow monitoring program for the spring sites and a significant portion of the Pinedale Aquifer upgradient of the project operations, and includes a provision for wetlands monitoring of the BHS property. Chaffee County approved the SGWMMP on May 5, 2010, and long-term monitoring and reporting has been conducted in accordance with the plan ever since.

The *2023 Annual Surface Water and Groundwater Monitoring Report for the Ruby Mountain Springs* (Exhibit 3) presents observations for the 2023 water year (November 1, 2022, to October 31, 2023). The report summarizes surface flow measurements collected on the RMS and BHS parcels, groundwater level data for wells in the monitoring well network, water quality data from approved monitoring locations, local and regional precipitation data, Arkansas River flows, and irrigation diversions for ditches that flow onto the local aquifer[3]. Additionally, the report provides an analysis of seasonal water levels relative to previously monitored years, as well as an evaluation for any effects that BTB's pumping causes on spring flow and groundwater levels in nearby monitoring wells.

Similar to previous years' observations, the 2023 hydrogeological report demonstrates that BTB's production pumping is detectable by only very slight, reduced flows through the lower RMS weir, and slightly lower groundwater levels in immediately adjacent monitoring wells. Conversely, recovery of flows in the weir and groundwater levels in immediately adjacent monitoring wells can be seen associated with pumping cessation events. Further, the monitoring data reveal no

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[3] Data has been posted on the DWR website for some structures in 2022 and 2023, but according to correspondence from DWR, this data is still being reviewed for errors and consistency.

influence of BTB's withdrawals on groundwater levels in upgradient monitoring wells on either the adjacent private parcels or the BHS parcel, demonstrating that BTB's spring water production continues to have only the predicted, minimal, and localized effect on aquifer water levels.

Water quality results for RMS throughout the long-term monitoring program for RMS show that spring water quality has remained consistent and not adversely affected by BTB operations (SSPA, 2024).

The *Bighorn Springs State Wildlife Area 2023 Monitoring Report* (Exhibit 2) presents results of the long-term vegetation monitoring program, which is designed to measure changes in wetlands and biological diversity and are scaled to detect any impacts due operations. Overall, transect and photo observations did not indicate a substantial change through time and the wetlands are in stable condition. Details are provided in Section 4.11 and 4.12, and in Exhibit 2.

4.15 Endowment and Programmatic Contributions

BTB becomes an active corporate citizen in the communities in which we operate. Based on Chaffee County citizen input, BTB focused its community partnering primarily in education, but also supports other local causes as detailed below. The following presents a summary of BTB’s 2023 programmatic contributions in Chaffee County.

Support of Education

In December of 2009, NWNA funded science education endowments to the Buena Vista Education Assistance Fund (BVCEAF) and to Support Our Schools Salida! (SOSS), each in the amount of $250,000 (total $500,000). Since the inception of these endowments:

- The principal balance of the BVCEAF has grown to $334,827 at year end 2023.
- The SOSS fund principal has grown to $310,179 at year end 2023.
- The BVCEAF received $15,000 in disbursement from its endowment fund in 2023, and SOSS received $18,233 in distribution from its endowment fund in 2023.

The following tables present summaries of BVCEAF and SOSS endowment funds and distributions made in 2023.

Annual Report 2023: Buena Vista Schools Science Education Endowment Fund (BVCEAF)

Summary Denver Foundation Endowment Fund for BVCEAF	
Beginning fund balance 2023	*$306,147*
Investment earnings	$46,869
less Denver foundation admin fee	($3,190)
less disbursement to the BVCEAF	($15,000)
Ending fund balance 2023	*$334,827**

*Figures in this table are rounded to whole dollar amounts; therefore, the column may not sum to exactly 100% of total.

Summary BVCEAF Account Transactions 2023	
Beginning balance 2023	*$33,141*
Total of 6 student scholarships awarded in May 2023	($12,000)
Total teacher grants issued in November 2023	($9,108)
Disbursement from Denver Foundation	$15,000
Ending balance 2023	*$27,033*

Annual Report 2023: Salida Schools Science Education Endowment Fund (SOSS)

Summary Denver Foundation Endowment Fund for SOSS	
Beginning fund balance 2023	*$284,841*
Investment earnings	$46,531
less Denver foundation admin fee	($2,960)
less disbursement to SOSS	($18,233)
Ending fund balance 2023	*$310,179*

Summary SOSS Account Transactions 2023	
Disbursement from Denver Foundation	$18,233
Total Individual Scholarships Awarded 2023	($7,500)
LES Science Resources for Fablab	($1,299)
Destination Imagination	($1,058)
Lego League	($600)
Middle School STEM Club	($2,359)
Middle School Ozobot Programming	($2,990)
Middle School Generation Genius Subscription	($299)
Flexible Seating	($3,308)
Science Program Support	($8,799)
Third Grade Weather Station	($1,200)
Administrative fees	($330)
Total Awarded 2023	*($29,741)**
Account Change 2023	*($11,508)* **

*Figures in this table are rounded to whole dollar amounts; therefore, the column may not sum to exactly 100% of total.

** SOSS Account beginning and ending balances not provided to BTB in 2023. BTB received no return communication from SOSS regarding balances.

In 2023, $7,500 of the disbursement was used by SOSS for student scholarships and $22,241 was used by SOSS to support classroom material needs such as science experiment supplies, seating upgrades, and student afterschool programs within the STEM fields. Since the fund's inception, SOSS has reportedly awarded over $25,000 in scholarships to worthy students. The remainder of historical disbursements to SOSS have funded grants that have served students and faculty in supporting education in health, math, science, and technology.

Community Partnering

In addition to supporting education and schools in Chaffee County, BTB has remained an active supporter of other community organizations and activities. The following table summarizes the financial programmatic contributions BTB made to support local organizations in 2023.

BTB Chaffee County: 2023 Endowment and Programmatic Contributions

Organization/Event	**Amount**
BVCEAF Science Education Endowment	$2,500
SOSS Science Education Endowment	$2,500
Chaffee County Housing Authority (CCHA)	$10,000
National Forest Foundation (NFF)	$10,000
Chaffee County – Water Quality, Supply & Sustainability	$10,000
Chaffee County Economic Development Corporation (CCEDC)	$7,500*
Total Chaffee County Endowment 2023 Contributions	*$42,500*

* Also reported in Condition 4.17 below.

In accordance with BTB's 1041 Permit, BTB will continue its annual programmatic support of local organizations for as long as it operates in Chaffee County.

According to the Board of County Commissioners (BOCC) $7,500 was provided to CCEDC for workforce & economic development and $10,000 was provided to CCHA for housing projects.

4.16 Philanthropic Contributions

The following table summarizes BTB's 2023 community partnering and financial contributions in Chaffee County.

BTB Chaffee County: 2023 Philanthropic Contributions

Organization/Event		**Total Contribution**
Chaffee County Community Foundation (CCCF)		$16,667
Chaffee County Board of County Commissioners– Philanthropic Contributions		$16,667
<u>BTB Directed Contributions</u>		
Collegiate Peaks Trout Unlimited	$3,000	
Buena Vista Chamber of Commerce	$3,500	
Boys and Girls Club	$5,000	
Quilts of Valor Foundation	$2,500	
Chaffee County Community Foundation	$2,500	
Buena Vista Optimist Club	$450	
Subtotal Philanthropic Contributions to local nonprofits		*$16,950**
Total 2023 Philanthropic Contributions		*$50,283***

* BTB contributed $283 over the annual donation amount of $16,667 (permit terms) to Chaffee County local nonprofits.

**Figures in this table are rounded to whole dollar amounts; therefore, the column may not sum to exactly 100% of total.

In accordance with BTB's 1041 Permit, BTB will continue its annual discretionary community programmatic support of local organizations, events, and causes for as long as it operates in Chaffee County.

Water Bottle Donations:

In 2023, BTB donated approximately 50,544 bottles of water to organizations within the state of Colorado, primarily in Chaffee County and the Denver metro area where the bottling factory resides. The following table lists the organizations and events that BTB donated bottled water to in 2023.

Water Bottle Donations in Chaffee County and Colorado

Organization/Details	Bottles	Value
Town of Boone (municipal water system issues)	46,800	$4,173
Lawson Mobile Home Village (loss of water within the distribution system)	3,744	$334
Total	**50,544**	**$4,507**

4.17 Local Drivers and Workforce Development

Local Truck Drivers

BTB and its trucking contractor, DG Coleman, have made continuous efforts since May 13, 2010, to recruit local drivers. Details regarding BTB's 2023 trucking operations are presented in the *2023 Summary of Trucking Operations* (Exhibit 4) and discussed in Sections 4.39 through 4.41. BTB and DG Coleman will continue their efforts to recruit and retain Chaffee County drivers. Efforts to hire local drivers in 2023 included the following:

- Local advertisements in the newspaper (Mountain Mail) and the radio station (Heart of the Rockies) totaling $4,611. BTB is aware of not meeting the permit requirement of $5,000 for local advertisements for truck drivers in 2023 by $389. BTB will contribute an additional $389 in 2024 to advertising.
- In general, BTB has contributed a $283 surplus in philanthropic giving in 2023, together with $4,507 value in product donations. Therefore, BTB exceeded the total value of programmatic, philanthropic, product donations and local advertising.
- There were no referrals in 2023; however, DG Coleman offered employees a $1,000 referral bonus throughout the year (meeting the permit requirement of $1,000 per driver).
- DG Coleman guaranteed a minimum of 40 hours per week for all Chaffee County drivers.
- Local applicants were given priority status during employment review process, and new drivers are now able to start at the top of the pay scale to attract better talent from the community.

In 2023, DG Coleman employed 16 drivers to haul water from the BTB Loading Facility to the Denver Bottling Plant; two of the employed drivers are Chaffee County residents. During 2023 operations, 3,587 loads were hauled and 12% of the loads (441 round-trips) were driven by Chaffee County residents.

Workforce Development

To assist with workforce and economic development and in accordance with the 1041 Permit, BTB contributed $75,000 to the CCEDC in 2021 (for the initial Year 1 Contribution), $7,500 in 2022 (for the annual Year 2 Contribution) and $7,500 in 2023 (for the annual Year 3 Contribution).

CCEDC intends to use the contributions from BTB to assist with their Talent Pipeline/Workforce Development program, which includes robust efforts to address the workforce shortages in Chaffee County. According to the Impact Narrative provided to BTB in February 2024, the CCEDC "has led quarterly half-day employer-focused training workshops, called Future of Work Bootcamps, since the summer of 2022. These bootcamps educate Chaffee County employers in the private, public and nonprofit sectors on emerging macro-level trends in hiring and talent development, including skills based hiring, job quality (benefits beyond compensation) and work-based learning (WBL). Bootcamp partners include Colorado Mountain College, Salida School District, Buena Vista School District, the Colorado Dept. of Ed, Colorado Dept. of Labor and Employment, and the Colorado Office of the Future of Work, and the Central Mountain Small Business Development Center. These bootcamps have been attended by the hiring and HR-focused executives from 61 local companies and organizations."

4.18 Contributions Summary

The tables below summarize the contributions for 2023[4] and for the 1041 Permit requirement to date, set forth in Conditions 4.15, 4.16 and 4.17.

Contributions Summary: 2023 Annual Permit Term

Focus Area		1041 Permit 2023 Annual Requirement	2023 Actual Contributions	Variance
1	Education/ Environmental Science	$5,000	$5,000	$0
2	Workforce & Economic Development	$7,500	$7,500	$0
3	Affordable Housing	$10,000	$10,000	$0
4	Forest Health	$10,000	$10,000	$0
5	Water Quality, Supply, & Sustainability	$10,000	$10,000	$0
6	Sustainability Action Plan	$0	$0	$0
7	General Philanthropy	$16,667	$16,667	$0
8	BoCC/County Partnership Requests	$16,667	$16,667	$0
9	Other Philanthropy	$16,667	$16,950	$283**
Total		**$92,500***	**$92,783***	**$283**

*Figures in this table are rounded to whole dollar amounts; therefore, the column may not sum to exactly 100% of total.

**In 2023, additional water donations were provided at a value estimated to be $4,507.

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[4] This *1041 Permit Annual Report* is for the calendar year (January 1 to December 31) and monetary contributions are based on the Permit Term, which is August 4 to August 3 of each year.

Contributions Summary Table: Permit Term

Focus Area		1041 Permit Requirement to Date	Actual Contributions to Date	Variance
1	Education/ Environmental Science	$15,000	$20,000	$5,000
2	Workforce & Economic Development	$90,000	$90,000	$0
3	Affordable Housing	$110,000	$110,000	$0
4	Forest Health	$110,000	$110,000	$0
5	Water Quality, Supply, & Sustainability	$110,000	$110,000	$0
6	Sustainability Action Plan	$50,000	$50,000	$0
7	General Philanthropy	$43,333	$43,333	$0
8	BoCC/County Partnership Requests	$43,333	$43,333	$0
9	Other Philanthropy	$43,333	$50,250	$6,917
Total		**$615,000***	**$626,917***	**$11,917**

*Figures in this table are rounded to whole dollar amounts; therefore, the column may not sum to exactly 100% of total.

Affiliated Recipient Organization

1. Endowment funds for the benefit of the School Districts
2. Chaffee County Economic Development Corporation (CCEDC)
3. Chaffee County Housing Authority (CCHA)
4. National Forest Foundation (NFF) within Chaffee County
5. Chaffee County
6. Chaffee County
7. Chaffee County Community Foundation (CCCF)
8. Chaffee County Philanthropy
9. Permittee Controlled

4.19 Right-of-Way

BTB continues to support the CR 300 widening project. The CR 300 ROW was executed on September 12, 2023. BTB is awaiting the final engineering designs and construction schedule from Chaffee County to implement monitoring throughout the construction effort. BTB has worked with the County to provide access on a portion of its property for the project. BTB requests timely updates to ensure continued protection of the springs water quality and wetlands in the RMS area during construction.

On May 31, 2023, the County Road and Bridge Department applied 3,400 gallons of dust suppression on CR 300 adjacent to the BTB BHS and RMS parcels. A 30% mag chloride solution was applied at a rate of 0.30 gallons per square yard.

4.20 Wildlife Friendly Fencing

BTB complies with the permit requirement for wildlife friendly fencing.

4.21 Fishing Access

BTB continued working with CPW to maintain and improve fishing access from its properties. Fishing access is provided on the east side of the Arkansas River through the BHS SWA Conservation Easement from both the north and south properties. Ribbon cutting to open the fishing access area to the public occurred September 2023.

4.22 Local Construction Jobs

The 1041 Permit condition requires BTB to hire local firms and purchase materials and supplies locally for construction of the RMS Project to the degree that it is commercially practical. BTB's corporate policy is to support local communities in which it operates. BTB always attempts to contract local workers and firms, and purchase materials and supplies for the project locally. In 2023, non-local contractors and suppliers were only used if local resources were unavailable due to scheduling constraints or insufficient or nondemonstrable technical abilities.

Construction Contractors & Material and Equipment Purchases

In 2023, BTB required services and materials for system operation, maintenance, and equipment up-grades. Additionally, BTB continuously performs maintenance on its' properties (e.g., landscaping, weed management, and fencing repairs) and perform upgrades (e.g., installation of fishing access trails and trailhead parking lot). In 2023, BTB's local contractor and supply expenditures amounted to approximately $57,851.

Professional Service Contractors

BTB employed one part-time employee and local professional service contractors for operations and monitoring assistance. In 2023, this amounted to approximately $112,803 of local services.

BTB, through its trucking contractor, aims to hire local truck drivers to haul spring water to its bottling plant. In 2023, 12% of the 3587 trips were made by local drivers whose compensation totaled $426,556 including benefits and paid overtime. Additionally, as discussed in Section 4.17 above, $4,611 was spent on local advertisements to hire Chaffee County truck drivers.

Other Local Spending

The table below summarizes BTB's local expenditures for project-related operations in 2023.

Local Expenditures Summary

Category	**2023 Expenditure**
Local Utilities and Local Service Providers*	*$45,434*
Water Augmentation by UAWCD	*$190,676*
Real Property Taxes	*$26,000*
Total 2023 project-related local spending	$262,110

* Category includes waste management, telecommunications, postage and shipping fees, vehicle repairs and fuel.

4.23 Project Impacts Related to Well Pumping

Condition is County permit proviso. No submittal is required.

4.24 Augmentation Water Source Restrictions

UAWCD provided the augmentation water for BTB operated production wells RMBH-2 and RMBH-3 (Project Wells) for the 2023 calendar and water year. All augmentation water was released from the UAWCD accounts in Twin Lakes Reservoir in compliance with this requirement. Twin Lakes is one of the three reservoirs permitted for augmentation water delivery. The Twin Lakes release location is above the points of depletion from Project Wells.

4.25 Limitation on Project Depletions

This Permit condition requires that BTB's water depletions to the Arkansas River be limited to the net amount (196.0 acre-feet which accounts for transit losses) of replacement water available to the Arkansas River in time, place and amount, and that releases of augmentation water comply with the terms contained in BTB's 1041 Permit as specified in Chaffee County Resolution 2021-58 for BTB's augmentation source provider UAWCD. BTB's compliance with the water augmentation operational terms of the 1041 Permit is presented in BTB's monthly reports to Chaffee County and in the *2023 Annual Accounting Report Regarding Well Pumping Operations and Augmentation Releases* (Exhibit 5).

4.26 Augmentation Plan Required

In 2023, BTB operated its Project Wells (RMBH-2 and RMBH-3) pursuant to the terms of the augmentation certificates issued by UAWCD and previously provided to the county. The sources of supply during that period were the sources set forth in the UAWCD plan for augmentation summarized in Case No. 06CW32. The State Engineer confirmed that the BTB wells are included in the UAWCD regional augmentation plans as decreed in Case Nos. 92CW84, 94CW5, 94CW41, 94CW42, 96CW17, 03CW55 and 06CW32.

4.27 Augmentation Water Delivery Restrictions

This 1041 Permit condition requires that BTB's depletions be replaced by augmentation water released up-stream of the RMS on the Arkansas River. All augmentation water was released from the UAWCD accounts in Twin Lakes Reservoir. BTB's compliance with this permit condition is presented in the *2023 Annual Accounting Report Regarding Well Pumping Operations and Augmentation Releases* (Exhibit 5).

4.28 Accounting and Reporting Requirements

On a monthly basis, BTB has provided the County with reports presenting the UAWCD's water operations on the Arkansas River and augmentation of BTB's daily depletions, which demonstrate BTB's compliance with this permit condition. BTB's compliance during 2023 with this water augmentation operational term of the 1041 Permit is summarized in the *2023 Annual Accounting Report Regarding Well Pumping Operations and Augmentation Releases* (Exhibit 5). All reporting in 2023 was based on direct meter readings[5] at midnight each day. Storage capacities in the UAWCD storage facilities approved in this permit are provided in the *2023 UAWCD District Supply and Demands Report* (Exhibit 6).

4.29 Pumping Well Operational Restrictions

Permit condition 4.29 allows BTB to operate two Project Wells (RMBH-2 and RMBH-3) simultaneously, but limits diversions from the wells to 200 gallons per minute (gpm), 1 acre-foot per day, and 16.6 acre-feet per month. Well RMBH-1 is utilized as a monitoring location and is not used for production.

In 2023, BTB operated RMBH-3 as the primary production well until October 2023, when RMBH-2 was also brought online as a production well. As demonstrated in Exhibit 3 and Exhibit 5, BTB produced 90.53 acre-feet of water from RMBH-3 in the 2023 water year (November 1, 2022, through October 31, 2023), and 79.05 acre-feet of water in the 2023 calendar year. Production well RMBH-2 was pumped solely for testing purposes until October 2023; withdrawal from RMBH-2 totaled 2.91 acre-feet for the 2023 water year and 9.23 acre-feet in the 2023 calendar year.

In 2023, BTB's total diversions from RMBH-2 and RMBH-3 combined were 93.44 acre-feet for the water year and 88.28 for the calendar year, which is well below the Permit limit of 196.6 acre-feet per year. The maximum monthly total diversion was 10.09 acre-feet in May 2023. The maximum daily pumping rate was 201.4 gpm during silt density index testing for a very short duration on September 21, 2023; and

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[5] In December 2020, BTB shifted to reporting direct meter readings for RMBH-2 and RMBH-3 instead of data from the Programmable Logic Controller (PLC) software system, as requested by the Colorado Division of Water Resources (CO DWR). Equipment was installed in November 2021 to capture the direct meter readings at midnight each day from the meters to provide more accurate daily measurements.

the maximum pumping rate during normal operations was 173.4 gpm on December 13, 2022. The maximum total daily diversion was 0.66 acre-feet on August 18, 2023 (for both the calendar year and the water year).

4.30 Construction of Pumping Wells

NWNA fully satisfied this Permit condition and constructed RMBH-2 and RMBH-3 in accordance with the County-approved provisions of the Technical Revision to the 1041 Permit. Throughout 2023, groundwater levels in the production wells were measured above the operational limit of one foot above the top of the well screens.

4.31 Surface Water Flow Measurements

BTB continues to monitor and provide the County with monthly reports presenting daily surface flow measurements at the RMS conveyance channel (i.e., the lower weir "RMS-Weir" and the upgradient flume "RMS-Flume"). Observed flows during the 2023 water year from the required locations are presented in the *2023 Annual Surface Water and Groundwater Monitoring Report for the Ruby Mountain Springs* (Exhibit 3). Additional flow data is presented for the two locations on the BHS Parcel (i.e., the upper Parshall flume "BHPF-1” and the lower, combined flow Parshall flume “BHPF-3"). The report also summarizes measured flows along the Arkansas River and irrigation ditch diversions relevant to the RMS aquifer.

As shown in the 2023 annual monitoring report and prior years observations, surface water flow at the RMS and BHS are predominantly controlled by seasonal groundwater level fluctuations. Further, BTB has demonstrated that production pumping from the boreholes have a measurable, though very minor effect on flows at the downgradient RMS weir but no influence at upgradient BHS is detectable.

4.32 Suspension of Pumping in the Event of Adverse Effects on Reconstructed Wetlands

In compliance with BTB's 1041 Permit, continued monitoring of groundwater levels and spring flows in relation to water withdrawals will be conducted and reported on a systematic basis during operations to evaluate and mitigate any negative effect on the RMS and associated wetlands. Consistent with studies conducted prior to permitting of operations, the *2023 Annual Surface Water and Groundwater Monitoring Report for the Ruby Mountain Springs* (Exhibit 3) demonstrates that production pumping has a measurable but very limited effect on downgradient RMS spring flows. Additionally, groundwater levels during pumping were above the permitted limits of one foot above top of screen interval throughout the year.

Discussion of the RMS hatchery restoration project is provided in Section 4.13 above, and details of the current conditions of the reconstructed wetlands are provided in the *Bighorn Springs State Wildlife Area 2023 Monitoring Report* (Exhibit 2). Observations from long-term data collected since 2010 and specifically from 2023 show that there are no impacts on the reconstructed wetlands from pumping, and there were no times during the reporting period that cessation of pumping was warranted. BTB continues to operate production under its permit limits.

4.33 Inclusion of Reconstructed Wetlands in SWSP or Augmentation Plan

Since the habitat reclamation project removed the former hatchery raceways and reduced the open water and emergent vegetation surface area, there has not been a significant change in consumptive use compared to pre-reclamation conditions. BTB has not included reconstructed wetlands augmentation in its Substitute Water Supply Plans (SWSPs) or its augmentation plan with UAWCD.

4.34 Cessation of Diversions upon Termination

The UAWCD augmentation water for BTB's RMS operations remained in full force and effect in 2023.

4.35 Project Infrastructure

BTB does not intend to terminate operations nor sell or transfer operations. BTB will provide the Permitting Authority the opportunity to discuss the use and transfer of project infrastructure if operations are considered to be terminated in the future.

4.36 Restrictions on Acquisition of Additional Water Rights in County

In 2023, BTB relied on UAWCD augmentation plan water solely to replace depletions. The lease has not been amended or modified in any way, and no additional water rights were acquired.

4.37 Water Rights Filing and Administrative Costs

BTB continues to operate its production wells under the UAWCD augmentation plan and anticipates no future water court filings throughout the term of its 35-year lease with UAWCD. Notwithstanding, BTB will continue to maintain sufficient funds in its Chaffee County Reimbursement Account to cover the County 's expenses associated with review of any changes to BTB's water augmentation.

4.38 U.S. Highway 285 Improvements Lobbying

BTB did not receive notification or request from Chaffee County regarding lobbying actions with Colorado Department of Transportation (CDOT) for improvements to US Highway 285 in 2023. Therefore, BTB did not directly or indirectly lobby CDOT for such improvements in 2023. However, CDOT completed construction of east-bound passing (uphill climbing) lanes on Trout Creek Pass in 2016. These lanes now provide opportunities for faster moving traffic to safely pass slower moving traffic including loaded BTB trucks.

4.39 Limits on Truck Traffic and Trucking Operations

This Permit condition places certain restrictions on BTB's trucking activity to limit impacts on the Trout Creek Pass portion of US Highway 285. These limitations include no more than 25 loaded trucks per day, with no more than two trucks per hour. During the restricted peak-hours period of 11:00 am to 6:00 pm from the Friday of Memorial Day weekend through the Labor Day weekend, truck traffic is limited to no more than two loaded trucks per hour, with an average of one truck per hour for the peak-hours period of each day.

There were no violations of the limitations of this permit condition[6]. The maximum number of tanker trips on any given day in 2023 was 19. The maximum number of truck trips for the one-hour period for any day during the restricted period was two, and the average trucking volume for the one-hour restricted period was no more than one truck per hour.

Each tractor has a clearly visible identification number, and a visible phone number for reporting concerns, as required by the state of Colorado.

The tank trailers are owned by BTB and registered in Colorado. The tractors are owned by DG Coleman and are part of their general fleet registered in Nebraska and operated nationally through the International Registration Plan (IRP). As part of IRP, all tractors and trailers operated by DG Coleman and all tanker trailers owned by BTB in Colorado are assessed all associated taxes and fees by the state of Colorado, which DG Coleman and BTB pay for each year of operation.

Additional details regarding BTB's *2023 Summary of Trucking Operations* is presented in Exhibit 4. BTB made a total of 3,587 truck trips in 2023 from the Truck Loading Facility to the Denver Bottling Plant. BTB utilized primarily 8,200-gallon tankers in 2023, with minor usage of two 6,500 gallon tankers.

4.40 Emission Standards

This Permit condition requires 2007 and newer tractor models to comply with air emission standards. BTB's trucking contractor, DG Coleman, utilized tractors that are 2018 and newer models, and a majority of the fleet are 2022 and 2020 Kenworths with 500 horsepower. All tractors are equipped with disc brakes for improved stopping and Electronic Log Devices (ELDs). BTB's fleet meets all federal, state, and local emission standards.

4.41 No Idling During Loading

In compliance with its Permit, BTB has not allowed its tanker trucks to idle during loading at the Truck Loading Facility. Limited idling only occurs as required for cold-weather start-up.

4.42 Emergency Access

BTB, in coordination with CPW, provides emergency river access on its properties through the designated BHS SWA conservation easement.

4.43 Revegetation

In 2023, BTB did not conduct activities that disturbed existing vegetation (other than maintenance of enhanced fishing access trails and educational paths discussed in Section 4.44 below), and therefore did not require revegetation on its properties. In

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[6] In 2014, BTB's Process Logic Controller (PLC computer) at the Truck Loading Facility in Johnson Village was programmed to limit the filling of no more than one truck per hour during the seasonally restricted dates and times.

the case that revegetation is required, BTB will engage with the County Staff, County Weed Manager, and CPW to fully satisfy this Permit condition.

4.44 Conservation Easement

In May 2021, the Capital Development Committee of the Colorado General Assembly granted the final approval for the Conservation Easement to proceed. BTB executed the CPW conservation easement (CE) for the BHS SWA on December 7, 2022, and recorded it on December 13, 2022, thereby satisfying this Permit condition.

The CE allows for spring water production operations to continue within the limits set forth by the 1041 Permit, in coordination with CPW and BTB. The purpose of the CE is to preserve relatively natural habitat, perpetuate open space conservation and values, enhance recreational and educational opportunities, and protect groundwater resources. In particular, the CE property within Chaffee County provides:

- Recreational and educational space (scenic enjoyment for the public through creating wildlife and landscape viewing locations);
- Protection of wildlife and natural habitat (preserves valuable wetlands, terrestrial vegetation, and riparian systems); and
- Connectivity to adjacent open space areas (access to fishing easements along the Arkansas River and adjacent land owned by the Bureau of Land Management buffering the Browns Canyon National monument).

In 2023, a public grand opening was held in September in partnership with CPW, TU, and BTB. In prior years, infrastructure and property management features were installed to allow access, protect the public and adjacent property owners, and enhance the CE values, including:

- Installation of a fishing access trailhead parking lot along CR 300 at the BHS property. Prior to construction, BTB applied for a County Road Access/Driveway Permit. The permit was issued in August 2022 and a $100 fee was paid by BTB.
- Placing wildlife friendly fencing along the parking lot and performing upgrades to the perimeter fencing to prevent trespass cattle;
- Creation of additional trails and signage including trail maps, guideposts, and trail markers to keep hikers on designated paths to protect sensitive wetland and habitat areas;
- Provide direct river access points for fishing including rock stairs down the terrace to the river; and
- Adding signage along the trail for educational purposes.

Administrative actions that were established in coordination with the CE in 2022 and 2023 include:

- Supporting the County with the CR 300 widening and improvements project through BTB's dedication of its property and adjusting the conservation easement property boundary to allow for the CR 300 expansion project to proceed;
- In close coordination with CPW, BTB prepared and implemented the final Conservation Easement Management Plan (CEMP) that describes the resource management partnering opportunities, property use restrictions, monitoring requirements related to the CE, and responsibilities of protecting habitat and groundwater resources; and
- Educational opportunities are provided throughout the year focused on natural resources by offering focused tours for the public and by collaborative partners at the BHS SWA. For example, in July 2023, AlpineEco conducted a training at the BHS wetland complex for 15 people from the Colorado Department of Transportation (CDOT) to identify edge habitats and dominant plant species (photo below).

Through its CE with CPW, BTB allows Chaffee County residents and visitors to enjoy and use their land while protecting biodiversity, groundwater resources, and scenic values. BTB has continued to maintain the CE and public access in 2023.

Exhibit 1

1041 Compliance Table and Regulations

Exhibit 1. 1041 Compliance Table and Regulations

1041 Regs	**Permit Conditions**
3-303(1)(a)	N/A
3-303(1)(b)	BOCC found the Amendment did not comply, but with the following Permit Conditions as mitigation measures does comply: *4.8 Financial Security* *4.10 Cost Reimbursement Fund and Application Review Costs* *4.11 Bighorn Springs Lands Management Plan* *4.12 Ruby Mountain Land Management Plan* *4.13 Hatchery Restoration and Wetlands Maintenance* *4.14 Wetlands and Groundwater Monitoring and Mitigation Plan* *4.15 Endowment and Programmatic Contributions* *4.16 Philanthropic Contributions* *4.17 Local Drivers* *4.18 Contributions Summary* *4.19 Right-of-Way* *4.20 Wildlife Friendly Fencing* *4.21 Fishing Access* *4.22 Local Construction Jobs* *4.38 U.S. Highway 285 Improvements Lobbying* *4.39 Limits on Truck Traffic* *4.40 Emission Standards* *4.41 No Idling During Loading* *4.42 Emergency Access* *4.43 Revegetation* *4.44 Conservation Easement*
3-303(1)(c)	Complied. No permit condition needed to comply with 1041 Regulation.
3-303(1)(d)	BOCC found the Amendment did not comply, but with the following Permit Conditions as mitigation measures does comply: *4.9 Compliance with Other Permits* *4.24 Augmentation Water Source Restrictions* *4.25 Limitation on Project Depletions* *4.26 Augmentation Plan Required* *4.27 Augmentation Water Delivery Restrictions* *4.29 Pumping Well Operational Restrictions* *4.30 Construction of Pumping Wells* *4.31 Surface Water Flow Measurements* *4.32 Suspension of Pumping in the Event of Adverse Effects on Reconstructed Wetlands*
3-303(1)(e)(i)	BOCC found the Amendment did not comply, but with the following Permit Conditions as mitigation measures does comply: *4.23 Project Impacts Related to Well Pumping* *4.24 Augmentation Water Source Restrictions* *4.25 Limitation on Project Depletions* *4.26 Augmentation Plan Required* *4.27 Augmentation Water Delivery Restrictions* *4.29 Pumping Well Operational Restrictions* *4.30 Construction of Pumping Wells* *4.31 Surface Water Flow Measurements* *4.32 Suspension of Pumping in the Event of Adverse Effects on Reconstructed Wetlands*
3-303(1)(e)(ii)	Complied. No permit condition needed to comply with 1041 Regulation.

Exhibit 1. 1041 Compliance Table and Regulations

1041 Regs	**Permit Conditions**
3-303(1)(f)(i)	BOCC found the Amendment did not comply, but with the following Permit Conditions as mitigation measures does comply: *4.23 Project Impacts Related to Well Pumping* *4.24 Augmentation Water Source Restrictions* *4.25 Limitation on Project Depletions* *4.26 Augmentation Plan Required* *4.27 Augmentation Water Delivery Restrictions* *4.29 Pumping Well Operational Restrictions* *4.30 Construction of Pumping Wells* *4.31 Surface Water Flow Measurements* *4.32 Suspension of Pumping in the Event of Adverse Effects on Reconstructed Wetlands*
3-303(1)(f)(ii)	BOCC found the Amendment did not comply, but with the following Permit Conditions as mitigation measures does comply: *4.23 Project Impacts Related to Well Pumping* *4.24 Augmentation Water Source Restrictions* *4.25 Limitation on Project Depletions* *4.26 Augmentation Plan Required* *4.27 Augmentation Water Delivery Restrictions* *4.29 Pumping Well Operational Restrictions* *4.30 Construction of Pumping Wells* *4.31 Surface Water Flow Measurements* *4.32 Suspension of Pumping in the Event of Adverse Effects on Reconstructed Wetlands*
3-303(1)(f)(iii)	BOCC found the Amendment did not comply, but with the following Permit Conditions as mitigation measures does comply: *4.23 Project Impacts Related to Well Pumping* *4.24 Augmentation Water Source Restrictions* *4.25 Limitation on Project Depletions* *4.26 Augmentation Plan Required* *4.27 Augmentation Water Delivery Restrictions* *4.29 Pumping Well Operational Restrictions* *4.30 Construction of Pumping Wells* *4.31 Surface Water Flow Measurements* *4.32 Suspension of Pumping in the Event of Adverse Effects on Reconstructed Wetlands*
3-303(1)(g)	BOCC found the Amendment did not comply, but with the following Permit Conditions as mitigation measures does comply: *4.9 Compliance with Other Permits* *4.11 Bighorn Springs Lands Management Plan* *4.12 Ruby Mountain Land Management Plan* *4.13 Hatchery Restoration and Wetlands Maintenance* *4.14 Wetlands and Groundwater Monitoring and Mitigation Plan*
3-303(1)(h)(i)	BOCC found the Amendment did not comply, but with the following Permit Conditions as mitigation measures does comply: *4.40 Emission Standards* *4.41 No Idling During Loading*

Exhibit 1. 1041 Compliance Table and Regulations

1041 Regs	**Permit Conditions**
3-303(1)(h)(ii)	BOCC found the Amendment did not comply, but with the following Permit Conditions as mitigation measures does comply: *4.13 Hatchery Restoration and Wetlands Maintenance* *4.14 Wetlands and Groundwater Monitoring and Mitigation Plan* *4.32 Suspenstion of Pumping in the Event of Adverse Effects on Reconstructed Wetlands*
3-303(1)(h)(iii)	BOCC found the Amendment did not comply, but with the following Permit Conditions as mitigation measures does comply: *4.11 Bighorn Springs Lands Management Plan* *4.12 Ruby Mountain Land Management Plan* *4.13 Hatchery Restoration and Wetlands Maintenance* *4.14 Wetlands and Groundwater Monitoring and Mitigation Plan* *4.20 Wildlife Friendly Fencing*
3-303(1)(h)(iv)	BOCC found the Amendment did not comply, but with the following Permit Conditions as mitigation measures does comply: *4.11 Bighorn Springs Lands Management Plan* *4.12 Ruby Mountain Land Management Plan* *4.13 Hatchery Restoration and Wetlands Maintenance* *4.14 Wetlands and Groundwater Monitoring and Mitigation Plan* *4.43 Revegetation*
3-303(1)(h)(v)	BOCC found the Amendment did not comply, but with the following Permit Conditions as mitigation measures does comply: *4.11 Bighorn Springs Lands Management Plan* *4.12 Ruby Mountain Land Management Plan* *4.13 Hatchery Restoration and Wetlands Maintenance* *4.14 Wetlands and Groundwater Monitoring and Mitigation Plan* *4.43 Revegetation*
3-303(1)(h)(vi)	BOCC found the Amendment did not comply, but with the following Permit Conditions as mitigation measures does comply: *4.11 Bighorn Springs Lands Management Plan* *4.12 Ruby Mountain Land Management Plan* *4.13 Hatchery Restoration and Wetlands Maintenance* *4.14 Wetlands and Groundwater Monitoring and Mitigation Plan*
3-303(1)(i)	BOCC found the Amendment did not comply, but with the following Permit Conditions as mitigation measures does comply: *4.9 Compliance with Other Permits* *(Prior Permit - 4.24 Construction Conditions Imposed as Part of the Special Land Use Permit)*
3-303(1)(j)	Complied. No permit condition needed to comply with 1041 Regulation.
3-303(1)(k)(i)	Complied. No permit condition needed to comply with 1041 Regulation.
3-303(1)(k)(ii)	Complied. No permit condition needed to comply with 1041 Regulation.
3-303(1)(k)(iii)	Complied. No permit condition needed to comply with 1041 Regulation.

Exhibit 1. 1041 Compliance Table and Regulations

1041 Regs	**Permit Conditions**
3-303(1)(k)(iv)	BOCC found the Amendment did not comply, but with the following Permit Conditions as mitigation measures does comply: *4.11 Bighorn Springs Lands Management Plan* *4.12 Ruby Mountain Land Management Plan* *4.13 Hatchery Restoration and Wetlands Maintenance* *4.14 Wetlands and Groundwater Monitoring and Mitigation Plan* *4.15 Endowment and Programmatic Contributions* *4.16 Philanthropic Contributions* *4.17 Local Drivers* *4.18 Contributions Summary* *4.19 Right-of-Way* *4.20 Wildlife Friendly Fencing* *4.21 Fishing Access* *4.22 Local Construction Jobs* *4.38 U.S. Highway 285 Improvements Lobbying* *4.39 Limits on Truck Traffic* *4.40 Emission Standards* *4.41 No Idling During Loading* *4.42 Emergency Access* *4.43 Revegetation* *4.44 Conservation Easement*
3-303(1)(k)(v)	BOCC found the Amendment did not comply, but with the following Permit Conditions as mitigation measures does comply: *4.15 Endowment and Programmatic Contributions* *4.16 Philanthropic Contributions* *4.17 Local Drivers* *4.18 Contributions Summary* *4.44 Conservation Easement*
3-303(1)(k)(vi)	BOCC found the Amendment did not comply, but with the following Permit Conditions as mitigation measures does comply: *4.11 Bighorn Springs Lands Management Plan* *4.12 Ruby Mountain Land Management Plan* *4.13 Hatchery Restoration and Wetlands Maintenance* *4.14 Wetlands and Groundwater Monitoring and Mitigation Plan* *4.15 Endowment and Programmatic Contributions* *4.16 Philanthropic Contributions* *4.17 Local Drivers* *4.18 Contributions Summary* *4.19 Right-of-Way* *4.20 Wildlife Friendly Fencing* *4.21 Fishing Access* *4.22 Local Construction Jobs* *4.42 Emergency Access* *4.43 Revegetation* *4.44 Conservation Easement*

Exhibit 1. 1041 Compliance Table and Regulations

1041 Regs	**Permit Conditions**
9-303(1)(a)	BOCC found the Amendment did not comply, but with the following Permit Conditions as mitigation measures does comply: *4.11 Bighorn Springs Lands Management Plan* *4.12 Ruby Mountain Land Management Plan* *4.13 Hatchery Restoration and Wetlands Maintenance* *4.14 Wetlands and Groundwater Monitoring and Mitigation Plan* *4.20 Wildlife Friendly Fencing* *4.43 Revegetation* *4.44 Conservation Easement*
9-303(1)(b)	BOCC found the Amendment did not comply, but with the following Permit Conditions as mitigation measures does comply: *4.11 Bighorn Springs Lands Management Plan* *4.12 Ruby Mountain Land Management Plan* *4.13 Hatchery Restoration and Wetlands Maintenance* *4.14 Wetlands and Groundwater Monitoring and Mitigation Plan* *4.20 Wildlife Friendly Fencing* *4.43 Revegetation* *4.44 Conservation Easement*
9-303(1)(c)	BOCC found the Amendment did not comply, but with the following Permit Conditions as mitigation measures does comply: *4.11 Bighorn Springs Lands Management Plan* *4.12 Ruby Mountain Land Management Plan* *4.13 Hatchery Restoration and Wetlands Maintenance* *4.14 Wetlands and Groundwater Monitoring and Mitigation Plan* *4.20 Wildlife Friendly Fencing* *4.43 Revegetation* *4.44 Conservation Easement*
9-303(1)(d)	BOCC found the Amendment did not comply, but with the following Permit Conditions as mitigation measures does comply: *4.11 Bighorn Springs Lands Management Plan* *4.12 Ruby Mountain Land Management Plan* *4.13 Hatchery Restoration and Wetlands Maintenance* *4.14 Wetlands and Groundwater Monitoring and Mitigation Plan* *4.20 Wildlife Friendly Fencing* *4.43 Revegetation* *4.44 Conservation Easement*
9-303(1)(e)	BOCC found the Amendment did not comply, but with the following Permit Conditions as mitigation measures does comply: *4.11 Bighorn Springs Lands Management Plan* *4.12 Ruby Mountain Land Management Plan* *4.13 Hatchery Restoration and Wetlands Maintenance* *4.14 Wetlands and Groundwater Monitoring and Mitigation Plan* *4.20 Wildlife Friendly Fencing* *4.43 Revegetation* *4.44 Conservation Easement*

Exhibit 2

Bighorn Springs State Wildlife Area
2023 Monitoring Report

Alpine Ecological Resources, LLC

Bighorn Springs State Wildlife Area 2023 Monitoring Report

Chaffee County, Colorado

Prepared for: BlueTriton Brands
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AlpineEco

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Bighorn Springs State Wildlife Area

2023 Annual Monitoring Report

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List of Acronyms and Abbreviations

BHS	Bighorn Springs
BHSSWA	Bighorn Springs State Wildlife Area
BLM	Bureau of Land Management
CDOA	Colorado Department of Agriculture
CMC	Colorado Mountain College
CNHP	Colorado Heritage Program
CPW	Colorado Parks and Wildlife
CR	County Road
CSU	Colorado State University
DoD	Dominson gravelly sandy loam, 1 to 9 percent slopes
DoF	Dominson gravelly sandy loam, 9 to 45 percent slopes
ET	Evapotranspiration
FAC	Facultative
FACWet	Functional Assessment of Colorado Wetlands
FGDC	Federal Geographic Data Committee
GPS	Global Positioning System
Gv	Gravelly alluvial land
HGM	Hydrogeomorphic
NWNA	Nestle Waters North America
NRCS	Natural Resources Conservation Service
OBL	Obligate
PEM	Palustrine Emergent
PSS	Palustrine Scrub-Shrub
SSc	San Isabel stony sandy loam, 1 to 5 percent slopes
SSPA	S.S. Papadopulos & Associates
SWA	State Wildlife Area
UPL	Upland
USACE	US Army Corps of Engineers
USDA	US Department of Agriculture
UTM	Universal Transversal Mercator
VHG	Vertical Hydraulic Gradient
WGS	World Geodetic System

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1.0 Introduction

1.1 History

The Bighorn Springs and Ruby Mountain Springs properties were acquired by Nestle Waters North America (NWNA), now BlueTriton Brands, in 2009 as part of a project to withdraw and transport groundwater for bottling. Chaffee County (County) granted a 1041 Permit and Special Land Use Permit for the project on September 23, 2009, and it was renewed for ten more years on August 4, 2021. These permits require BlueTriton Brands to submit an annual monitoring report to the County, Colorado Parks and Wildlife (CPW), and the US Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS). The monitoring effort is currently led by S.S. Papadopulos & Associates, Inc. (SSPA), with support from AlpineEco and others.

In 2023, a conservation easement (CPW 2022) was granted by BlueTriton Brands to CPW for the 119 acres (**Figures 1 and 2**), which named the property the Bighorn Springs State Wildlife Area (BHSSWA) and separated it into two sections: North (including Bighorn Springs or BHS) and South (including Ruby Mountain Springs).

1.1.1 North Section

Historically, the land that is now the North Section was mainly used for grazing and other agricultural purposes. Once purchased by BlueTriton, it essentially went unused except for some limited cattle grazing. The property did not contain infrastructure until BlueTriton installed the buried pipeline, wells, and water monitoring equipment. In 2022, a small parking lot and walking trails were installed to facilitate educational and recreational use of the newly created SWA.

1.1.2 South Section

According to the *2019 Ruby Mountain Springs Monitoring Report* (CMC 2019), the South Section had been developed into a primitive fish hatchery sometime before it was purchased by the Dowell Family in 1965. The hatchery was constructed on a 1,000-foot-long and 100-foot-wide earthen terrace above the river with trout runs made of native materials. The Dowell Family sold the hatchery to Professor Harold Hagen in 1970 and it was operated under the identity of “Hagen Western Hatcheries” until 1997. During that time, the hatchery was expanded to include numerous concrete-lined runs, a groundwater piping system, and multiple buildings. The Hagens lived on-site until 2010 when NWNA took possession of the property.

Upon taking possession, NWNA contracted the Colorado Mountain College (CMC) Natural Resource Management program to prepare a reclamation plan for the site. The voluntary reclamation project was intended to transform the old hatchery into a more natural system, whereby enhancing wetland and riparian habitat. CMC developed the plan based on input from members of a stakeholder committee composed of regulatory, scientific, and educational members, including CPW (fishery biologists, wildlife biologists, and amphibian specialists), Trout Unlimited, Ducks Unlimited, Chaffee County, adjacent landowners, Chaffee County High School, and Apex Development Services. Specifically, the goals of the reclamation project were to:

Figure 1: Site Location

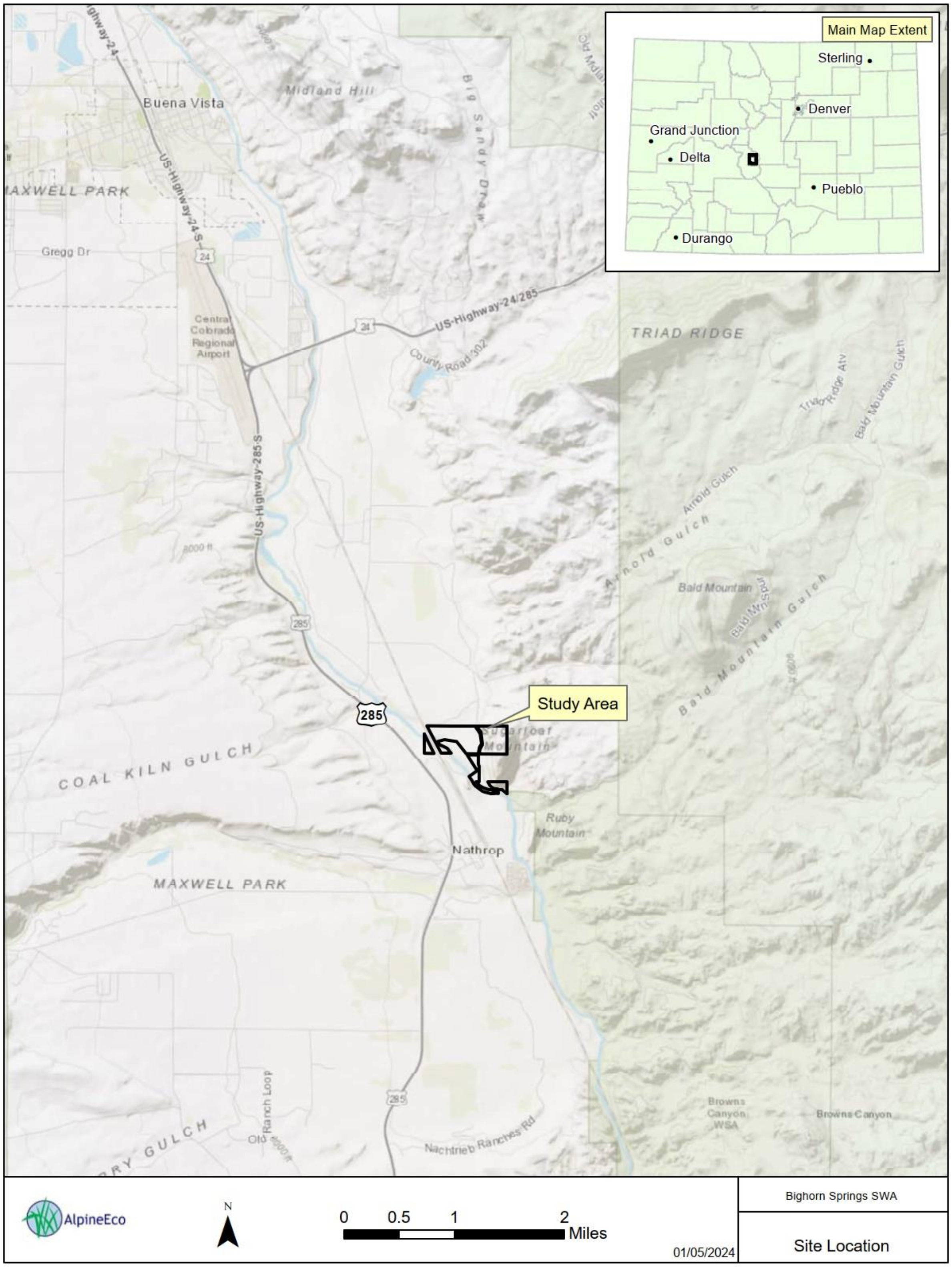
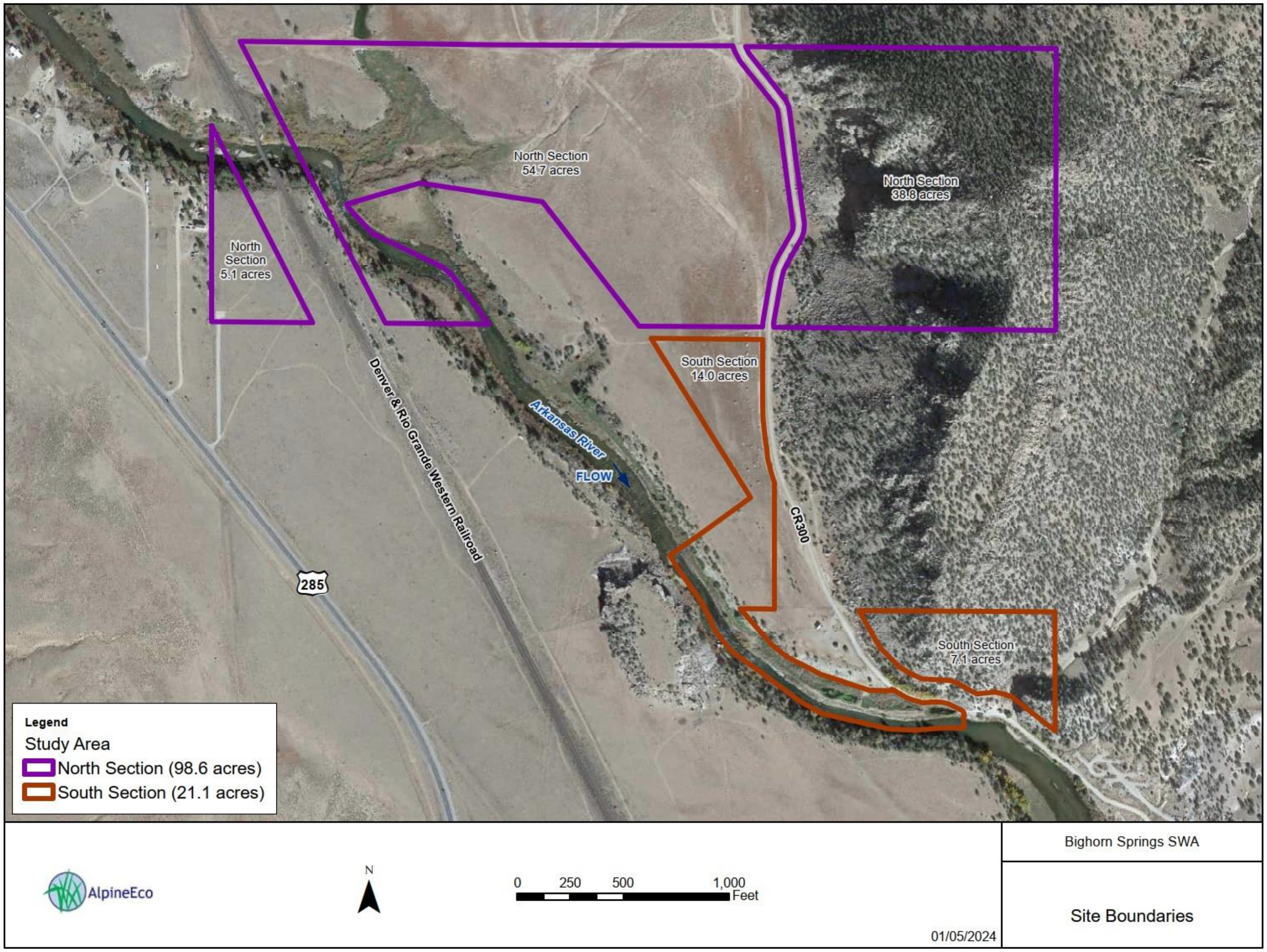


Figure 2: Site Boundaries



- Replace fish hatchery features with a more natural stream/pond aquatic and riparian environment to enhance the ecosystem.
- Maintain the lower weir to comply with water flow monitoring requirements.
- Decrease or maintain surface water exposure to decrease or maintain historic consumptive water use through evaporation.
- Incorporate a conservation easement on the property to allow fishing in the Arkansas River; below the high water mark, along the property boundary.
- Mitigate noxious weeds on the property without the use of chemicals to preserve and protect water quality.
- Incorporate educational signage and educational opportunities for local school districts, colleges, and non-profit groups.
- Study and implement strategies to make the site self-sustaining.

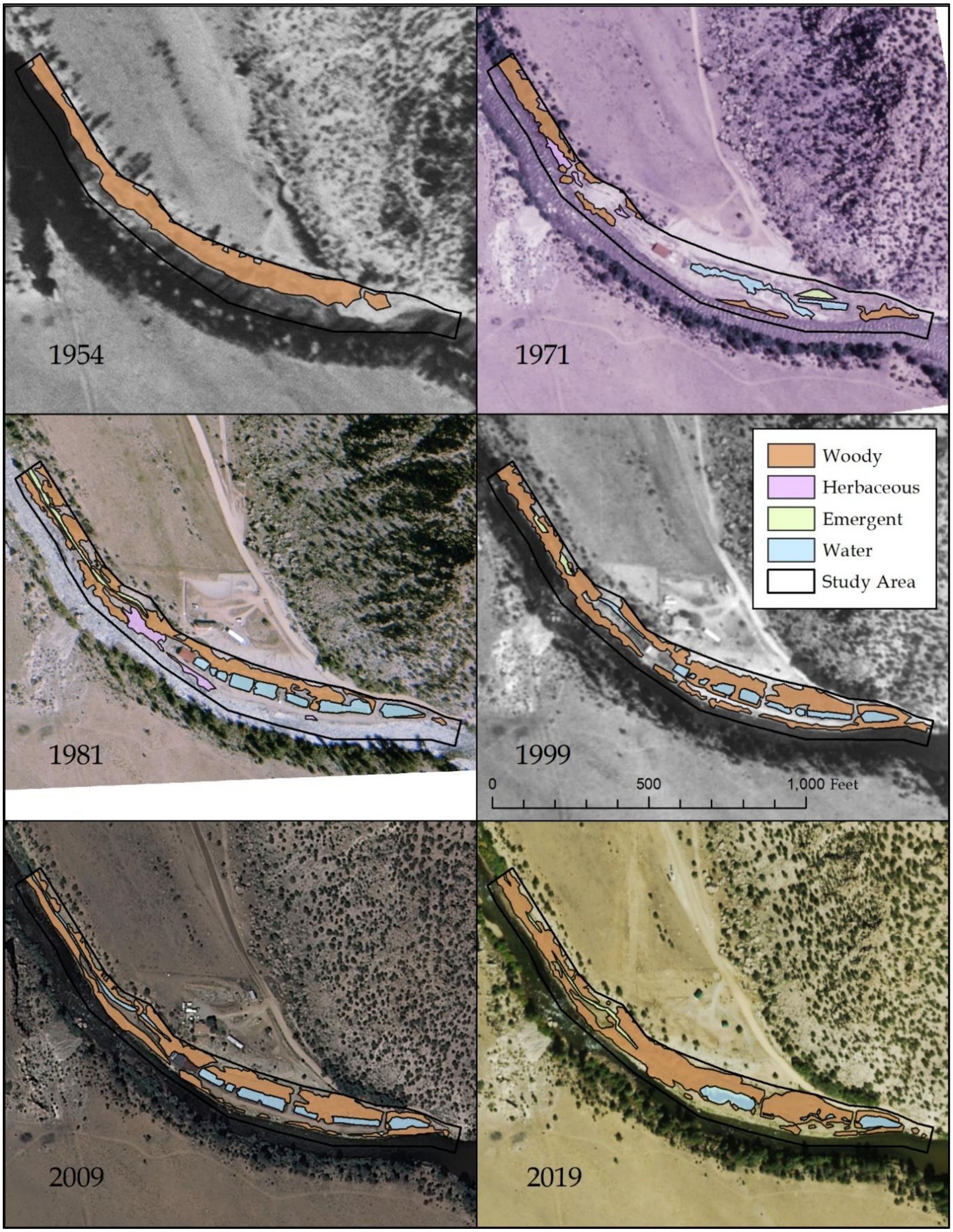
In 2012, Miles Construction was hired to implement the reclamation plan and remove various concrete structures and water piping from the former fish hatchery operation, and install new ponds, waterfalls, and several hundred feet of channel. CMC provided hand-labor throughout the duration of construction activities, including the revegetation work. Revegetation consisted of live transplants and installing containerized native plants.

In 2022, AlpineEco analyzed aerial imagery from 1954 to 2019 to quantify areal changes in vegetation cover types and open water, and to establish a baseline for future comparison (AlpineEco 2023d; **Table 1 and Figure 3**). The 1954 image shows that the study area was undeveloped and almost entirely covered by woody vegetation, including what appear to be mostly willows with some evergreen trees. No open water or emergent vegetation was visible on the floodplain bench. By June 1971, the hatchery was under construction and most of the study area had been cleared and graded. The central portion of the floodplain bench had been widened southward by approximately 10 to 20 feet. Woody vegetation extent was significantly reduced at this time, while novel open water and emergent vegetation (growing in standing water) habitats were created. By 1981, the fish farm was complete and included eight small water bodies totaling 0.47 acre. Woody vegetation consisting primarily of willows and other shrubs had recolonized much of the disturbed area. Woody vegetation reached 1.95 acres by 1999, and the site changed little through 2009. By 2019, approximately seven years after the hatchery had been reclaimed, the area of open water was reduced to 0.29 acre, similar to what existed during 1971. Woody vegetation covered 2.13 acres, or 0.14 acre more than in 1954, owing to the wider floodplain bench surface created before 1971. While woody vegetation in 2019 occupied acreage comparable to predeveloped conditions (circa 1954), approximately 0.11 acre of emergent vegetation, which was not visible during 1954, occupied the spring channel in the eastern part of the study area. Areas not covered by discernable vegetation types were assumed to be bare for all photo years, but they may have supported sparse herbaceous vegetation.

Table 1: Area of Vegetation and Water on the Floodplain Bench Portion of the South Section

Cover Type	Year					
	1954	1971	1981	1999	2009	2019
Woody	1.99	0.74	1.21	1.95	1.79	2.13
Herbaceous	0	0.09	0.21	0	0	0
Emergent	0	0.05	0.15	0.06	0	0.11
Total Vegetation	**1.99**	**0.88**	**1.57**	**2.01**	**1.79**	**2.24**
Water	0	0.27	0.47	0.37	0.50	0.29

Figure 3: Vegetation and Open Water on the Floodplain Bench Portion of the South Section Since 1954



1.2 Management Goals and Objectives

The original management goals and objectives for the property are outlined in the *Bighorn Springs Parcel Land Management Plan* (NWNA 2010a) and *Ruby Mountain Springs Parcel Land Management Plan* (NWNA 2010b). These were amended by the *Conservation Easement Management Plan* (Plan) in 2023 (CPW 2022), which states that the overall management goals are to:

"…preserve, in perpetuity, relatively natural habitat, open-space conservation values, enhance recreational/educational opportunities and protect groundwater resources….allow for continued operation of the spring water production operations within the limitations set forth by the 1041 Permit, while providing habitat for wildlife, maintaining valuable wetlands and riparian systems, and protecting groundwater…provide scenic enjoyment…and access to fishing easements."

The specific objectives associated with these goals are listed in the Plan for each of the five management concerns, as follows:

Vegetation

- North Section: *"Ensure that healthy and productive native plant communities are present and sustainable, including wetlands, uplands, and transitional areas while protecting groundwater."*
- South Section: *"Promote healthy plant communities to facilitate educational and recreational opportunities, while protecting wetlands, groundwater, and other aquatic habitats."*

Game Species

- North Section: *"Protect and enhance wildlife habitat."*
- South Section: *"Enhance educational and recreational opportunities, while maintaining healthy natural habitats for wildlife and protecting groundwater resources."*

Special Status Species Conservation

- Sitewide: *"Promote conditions that support healthy and diverse habitats, such that they may be used by special status species."*

Water

- Sitewide: *"Maintain springwater collection operations per the terms of the 1041 Permit, maintain springwater quality, and protect and preserve water quality and wildlife habitats associated with the Arkansas River, while providing enhanced educational and recreational opportunities."*

Recreation

- Sitewide: *"Enhance educational and recreational opportunities, while minimizing impacts to natural resources and protecting groundwater resources."*

1.3 Site Maintenance

1.3.1 North Section

Limited maintenance activities have taken place in the North Section since it was acquired. Work since 2021 includes both general maintenance and noxious weed management as shown in **Tables 2 and 3**.

Table 2: North Section General Maintenance

Year and Action Taken
2021 o Construction of trails o Installation of educational and other signage
2022 o Construction of trails o Installation of educational and other signage o Construction of parking area
2023 o Maintenance of parking area and signage to enhance the educational experience o Trail cleanup and rock work on stairs to ensure the safety of visitors and anglers, o Fence repair

Table 3: North Section Noxious Weed Management

Year and Action Taken
2021 o July - inspection of noxious weeds
2022 o May – inspection of noxious weeds with County Weed Department o July - mechanical removal of Bull Thistle (*Cirsium vulgare*) and Common Mullein (*Verbascum thapsus*), and application of rust fungus for Canada Thistle (*Cirsium arvense*)
2023 o May – inspection of noxious weeds with County Weed Department o June - mechanical removal of Bull Thistle and Common Mullein o September – herbicide treatment of Canada Thistle by the County Weed Department

1.3.2 South Section

Various maintenance activities have taken place in the South Section since the reclamation work was completed in 2012, including both general maintenance and noxious management as shown in **Tables 4 and 5**.

Table 4: South Section General Maintenance

Year and Action Taken[1]
2015 ○ Raised the berm between the lower pond and the Arkansas River by approximately 12 to 18 inches ○ Removed overgrown willows (*Salix* spp.) and other debris ○ Constructed a wider observation platform at the lower weir ○ Widened the lower bridge to accommodate small heavy equipment ○ Constructed a new bridge at the upper waterfall
2016 ○ Repaired lower bridge ○ Cleared debris from along the top of the river bank ○ Cleared stream-flow obstructions and removed other site-wide debris ○ Installed new photo point monuments
2018 ○ Cut and burned overgrown willows
2019 ○ Cut and removed overgrown willows
2020 ○ No maintenance performed because of the pandemic
2021 ○ Removed windblown debris and overgrown willows ○ Repaired walking paths ○ Planted 20 containerized (15-gallon) Narrow-Leaf Cottonwoods (*Populus angustifolia*) around the ponds and channel
2022 ○ Removed windblown debris, old fencing, pipe, and other equipment ○ Removed overgrown willows and pond algae to improve trails and overall viewing experience ○ Re-graded trails, and added several gates and bridges to improve trails and overall viewing experience
2023 ○ Removed overgrown willows, windblown debris, and pond algae ○ Improved trails to improve the overall viewing experience ○ Installed boot brush station

[1] Information for years 2015 through 2019 is adapted from CMC (2019). Maintenance between 2015 and 2018 was performed by CMC. After 2018, maintenance was performed by BlueTriton Brands. Some additional actions may have been taken and if so, were summarized in the annual reports to the County.

Table 5: South Section Noxious Weed Management

Year and Action Taken[1]
2021 ○ August - mechanical removal of Bull Thistle and Common Mullein ○ September - Mechanical removal of Bull Thistle and Common Mullein - Application of rust fungus for Canada Thistle - Herbicide treatment of Oxeye Daisy (*Leucanthemum vulgare*) and some Bull Thistle using *Milestone* diluted to 7 ounces per 24 gallons of water; mixed with 4 ounces per 24 gallons of water of *Alligare Super* marking dye and 4 ounces per 24 gallons of water of *Premier 90* surfactant
2022 ○ May - inspection of noxious weeds with County Weed Department ○ July - mechanical removal of Oxeye Daisy, Bull Thistle, and Common Mullein ○ October - mechanical removal of Oxeye Daisy, Bull Thistle, and Common Mullein
2023 ○ May - inspection of noxious weeds with County Weed Department ○ June - mechanical removal of Oxeye Daisy, Bull Thistle, and Common Mullein ○ August - mechanical removal of Oxeye Daisy, Bull Thistle, and Common Mullein

[1] Some additional actions may have been taken and if so, were summarized in the annual reports to the County.

1.4 Previous Monitoring

Ecological monitoring has been conducted annually since at least 2010, except for 2020 when CMC defaulted on its contract to perform monitoring and reporting due to pandemic economic impacts. Prior to 2023, the monitoring effort was documented in annual updates to four separate reports, including:

- *Bighorn Springs Wetland Monitoring Report*
- *Bighorn Springs Grazing Management Plan*
- *Ruby Mountain Springs Monitoring Report*
- *Bighorn and Ruby Mountain Springs Noxious Weed Management Plan*

Because of the new management goals and objectives set forth by the conservation easement, starting in 2023 all four reports were integrated into this comprehensive annual report. Since the site is not currently grazed (other than by wildlife, namely bighorn sheep), information previously included in the *Grazing Management Plan* has been integrated into *Sections 4.1.2* and *4.2.2 Upland Vegetation*. Annual updates on noxious weeds are provided in *Sections 4.1.3* and *4.2.3 Noxious Weeds*, and **Appendix G** contains the *Bighorn Noxious Weed Management Plan*, which outlines the noxious weed management approach.

The following sections provide a summary of the previous ecological monitoring activities (Note: additional hydrologic monitoring is being performed by others and not included here).

1.4.1 North Section

Ecological monitoring for the North Section of BHSSWA has included the following:

Wetland Hydrology

- Flow data from two flumes on the spring outflow channel, which were installed in 2007 with a staff gauge added in 2008; currently monitored by SSPA and information provided to AlpineEco
- Shallow groundwater data from ten piezometers throughout the wetland area installed in 2009; currently monitored by SSPA and information provided to AlpineEco

Wetland Vegetation

- Data collected annually by CMC from 2010 to 2019; monitoring and reporting performed by AlpineEco since 2021
- Additional photo points and quantitative data collection transects established by AlpineEco in 2021

Upland Vegetation and Forage Value

- Data collected annually by CMC from 2010 to 2019; monitoring and reporting performed by AlpineEco since 2021
- Additional quantitative data collection transects installed by AlpineEco in 2023

1.4.2 South Section

Ecological monitoring for the South Section has included the following:

Surface Hydrology

- Flow data from two flumes installed in 2007 and 2009; currently monitored by SSPA and information provided to AlpineEco

Wetland Vegetation

- Data (qualitative only) collected annually by CMC from 2012 to 2019; monitoring and reporting performed by AlpineEco since 2021
- Additional photo points established by AlpineEco in 2023

Upland Vegetation

- Data (qualitative only) collected annually by CMC from 2012 to 2019; monitoring and reporting performed by AlpineEco since 2021
- Additional photo points established by AlpineEco in 2023
- Quantitative data collection began in 2023 and is being performed by AlpineEco

2.0 Site Description

BHSSWA is in Chaffee County, near Nathrop, Colorado (**Figure 1**). It is situated along the Arkansas River at an elevation of around 7,600 feet above mean sea level and encompasses approximately 119.7 acres (**Figure 2**). It can be found on the United States Geological Survey 7.5-minute series *Buena Vista East, Colorado* quadrangle and is in the following location (datum is WGS84):

- Township 15 South, Range 78 West, Section 11
- Universal Transversal Mercator (UTM Zone 13N)
    - Midpoint of North Section river frontage: 405862E, 4290792N
    - Midpoint of South Section river frontage: 406500E, 4290097N
- Latitude/Longitude
    - Midpoint of North Section river frontage: 38.760818, -106.083496
    - Midpoint of South Section river frontage: 38.754626, -106.076058

2.1 North Section

The North Section encompasses approximately 98.6 acres and spans from the Arkansas River to Sugarloaf Mountain (**Figure 2**). It includes a small, mostly upland area west of the Denver and Rio Grande Western Railroad, BHS and the associated wetland complex adjacent to the river, and extensive upland grasslands on the valley floor between the wetland complex and County Road (CR) 300. East of CR 300, a large area encompasses the northern portion of Sugarloaf Mountain, which is a combination of rock outcrops, talus slopes, and Pinyon-Juniper (*Pinus edulis-Juniperus scopulorum*) Woodland. This report focuses on the wetlands and uplands between the river and CR 300 (**Figure 4**).

2.1.1 Wetland Area

The wetland area contains five wetlands (Wetlands 2 through 6) that were delineated and assessed by ENSR/AECOM in 2008 (ENSR/AECOM 2008; **Figure 5**). The wetlands are supported by Bighorn Springs and a diffuse network of seeps, which discharge groundwater from the Pinedale Alluvium originating from sources to the north and underflow from the mountains to the east. The BHS outflow channel dissects the wetland complex, hydrologically separating the north and south wetlands. The southern portion of the site has drier wetlands with mineral soils and is sustained by seasonal groundwater discharge. The northern portion is sustained by perennial groundwater discharge from the north that promotes robust wetland vegetation and organic soils (**see photos below**).

The wetlands are classified according to the Hydrogeomorphic (HGM) Method (Brinson 1993) as slope and the Federal Geographic Data Committee (FGDC 2013) as a mix of palustrine emergent (PEM) and palustrine scrub-shrub (PSS). Most of the wetlands are PEM and dominated by various sedges (*Carex* spp.) and other graminoids. The PSS wetlands primarily occur along the slopes just north of the outflow channel and within Arnold Gulch, and are dominated by various willow (*Salix* spp.) species.

The mapped soils in the wetland area are predominantly Dominson gravelly sandy loam, 9 to 45 percent slopes (DoF), which are not usually associated with wetlands (**Figure 4**). These soils are typically excessively drained and found on fan terraces that are derived from alluvium and/or moderately coarse-textured gravelly outwash (NRCS 2023).

Figure 4: North Section

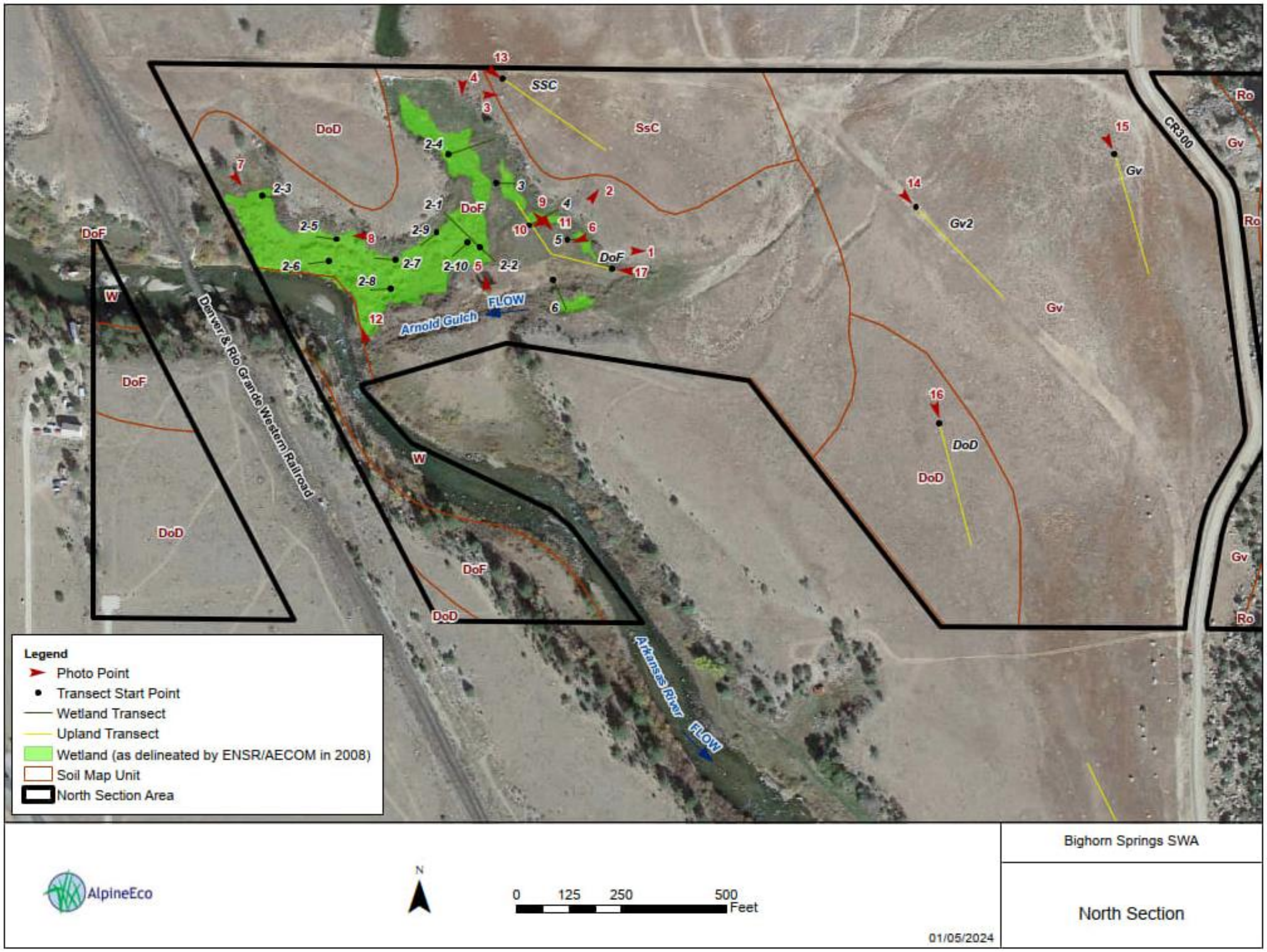
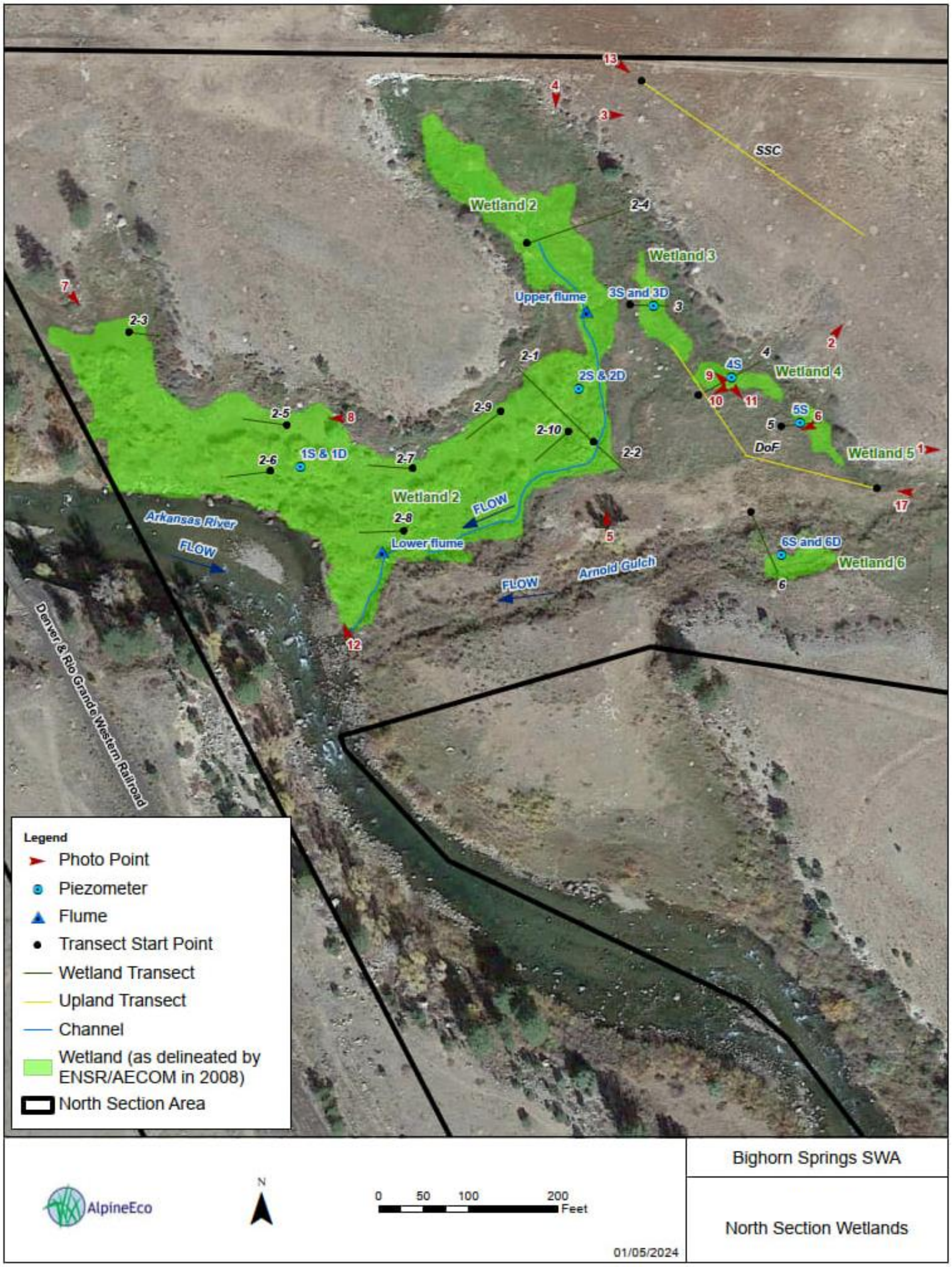


Figure 5: North Section Wetlands



Wetter portions of the wetlands west of the spring channel (left) and drier wetlands east of the channel (right), taken 7/25/23.

2.1.2 Upland Area

The upland areas surrounding the wetland and extending east to CR 300 (**Figure 4**) consist mostly of native dryland grasses, subshrubs, and forbs, with patches of weedy native and non-native forbs in areas of more recent disturbance. Common plants in this area are more characteristic of a mid- or short-grass prairie community, including Blue Grama (*Bouteloua gracilis*), Sand Dropseed (*Sporobolus cryptandrus*), Spreading Buckwheat (*Eriogonum effusum*), and Plains Pricklypear (*Opuntia polyacantha*). Areas more recently disturbed contain fewer native perennials and are mostly dominated by Burningbush (*Bassia scoparia*) and Slender Russian Thistle (*Salsola collina*), with scattered Blue Grama. Arnold Gulch crosses the upland area and is a sandy channel that flows intermittently.

The upland area contains coarse soils developed on glacial outwash and alluvial fan deposits, including Dominson gravelly sandy loam, 1 to 9 percent slopes (DoD); Dominson gravelly sandy loam, 9 to 45 percent slopes (DoF); San Isabel stony sandy loam, 1 to 5 percent slopes (SsC); and Gravelly alluvial land (Gv) (NRCS 2023; **Figure 4**). These soils are all considered somewhat excessively drained with low water-holding capacity.

Upland areas; typical DoF soil type (left) and SsC soil type (right), taken 7/25/23.

2.2 South Section

The South Section encompasses approximately 21.1 acres, including a constructed terrace above the Arkansas River that contains open water, wetlands, and small areas of riparian and upland habitats associated with RMS; an upland grassland to the north; and an area of Pinyon-Juniper Woodland on the southern flank of Sugarloaf Mountain to the east (**Figure 6**). This report focuses on the constructed terrace and uplands to the north.

2.2.1 Constructed Terrace

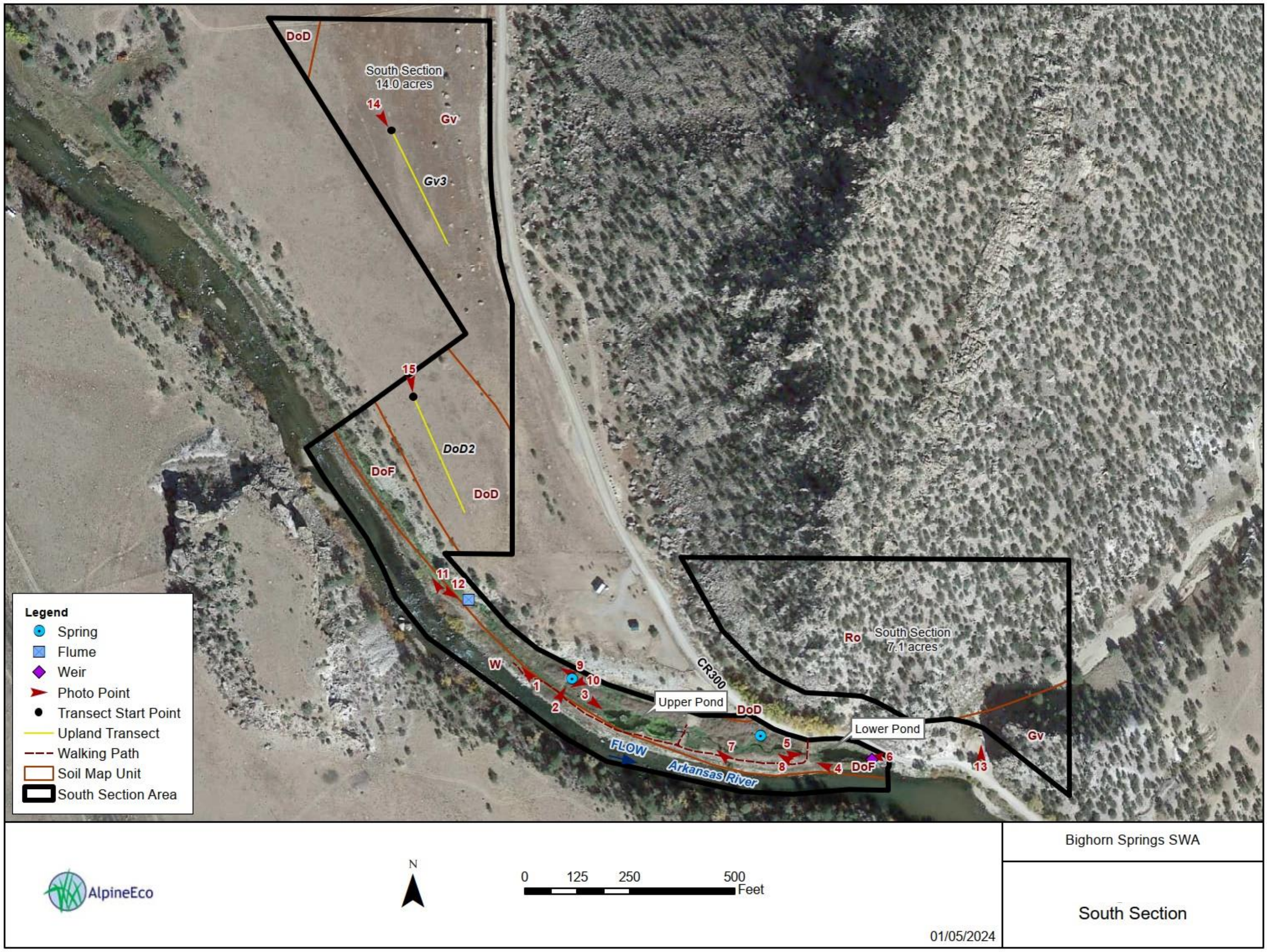
The constructed terrace area contains wetland and riparian habitat adjacent to the river, the constructed spring channels and ponds from the 2012 reclamation work, and small interspersed areas of weedy upland habitat along the walking path. The water for the site comes from a constructed channel upgradient of the springs and several discharge points associated with RMS. The two constructed ponds are connected by a channel that varies from 4 to 8 feet wide, which discharges to the river at the eastern margin of the site. The ponds were constructed for fish habitat and visual/educational experience, but are relatively shallow and typically contain substantial algae (**see photo below**) that is removed by hand in most years. The wetlands are mostly restricted to narrow fringes around the ponds and associated channels. A walking path runs the length of the site along the river edge of the terrace and crosses the constructed channel in several places.

The wetlands are classified according to the HGM Method (Brinson 1993) as depressional and the FGDC (FGDC 2013) as a mix of PEM and PSS (**see photo below**). The PEM wetlands are mostly found within and immediately adjacent to the channels and ponds. In areas where standing or flowing water is consistently 6 to 12 inches deep, dominant vegetation is mostly Watercress (*Nasturtium officinale*) and Blue Water Speedwell (*Veronica anagallis-aquatica*). In areas where water is less than 6 inches deep and the soil remains permanently saturated, dominant vegetation is mostly Nebraska Sedge (*Carex nebrascensis*).

Typical PEM and PSS wetlands (left) and algae on the Upper Pond (right), taken 7/11/21.

The PSS wetlands are generally situated immediately up-gradient of the PEM wetlands and typically have saturated soil within 12 inches of the surface for at least a part of the growing season. These wetlands are dominated by Narrowleaf Willow (*Salix exigua*), with an understory of

Figure 6: South Section



Nebraska Sedge in many areas. Many of the willows in the PSS wetland area are regularly trimmed to the ground surface to improve the overall viewing experience for visitors but regrow to heights of 3 to 5 feet each year.

Although a formal assessment of wetland functions has not been conducted, based on the concepts presented in the *Functional Assessment for Colorado Wetlands (FACWet) Method* (Johnson, et al. 2013), the general functional condition of the wetlands is "Functioning" to "Functioning Impaired" (letter grade of "C" to "D"). This is a result of the presence of several major ecological stressors, including historic wetland loss, altered water source, altered water distribution, and extensive geomorphic modifications associated with the constructed terrace, channels, ponds, walking paths, and other artificial features. This functional condition is much improved from the period when the fish hatchery was operational and likely much more similar to the pre-hatchery conditions when the constructed terrace was dominated by willows and other woody vegetation (AlpineEco 2023d).

The small areas of interspersed uplands are mostly in and around the walking paths and are dominated by a mix of both native and non-native plants (**see photos below**). The most common non-native species include Cheatgrass (*Bromus tectorum*), Field Bindweed (*Convolvulus arvensis*), and Common Mullein (*Verbascum thapsus*). The most common native species include two grasses: Sand Dropseed (*Sporobolus cryptandrus*) and Sleepygrass (*Achnatherum robusta*); and numerous weedy forbs or subshrubs, including Mountain Tansymustard (*Descurainia incana*), Prairie Sagewort (*Artemisia frigida*), Biennial Wormwood (*Artemisia biennis*), Tall Tumblemustard (*Sisymbrium altissimum*), and Curlycup Gumweed (*Grindelia squarrosa*).

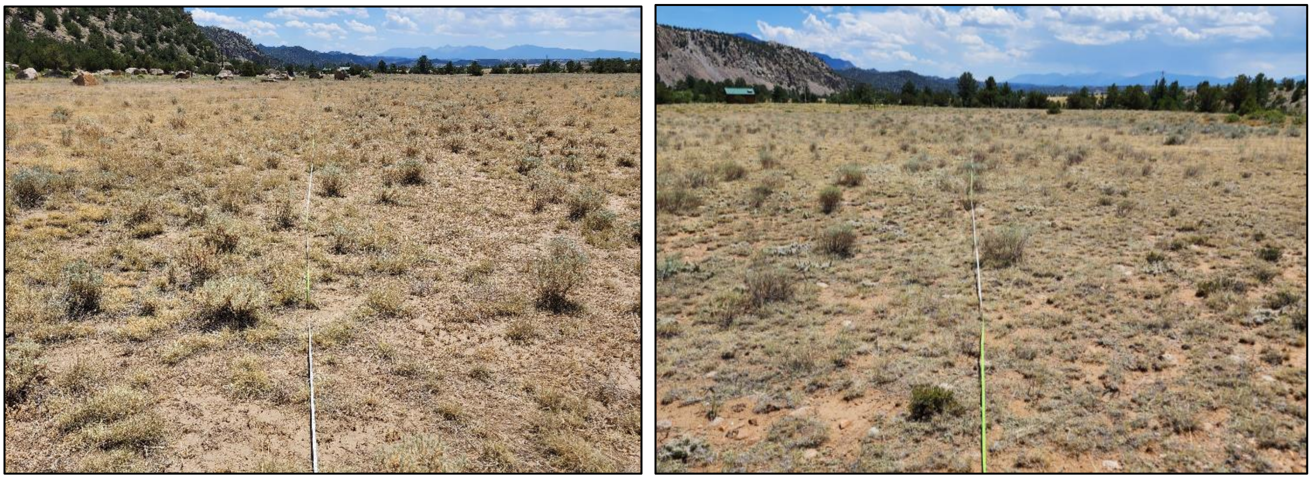
The mapped soils on the terrace are the same as those in the wetlands in the North Section; predominantly Dominson gravelly sandy loam, 9 to 45 percent slopes (DoF), which are not usually associated with wetlands (**Figure 6**). These soils are typically excessively drained and found on fan terraces that are derived from alluvium and/or moderately coarse-textured gravelly outwash (NRCS 2023).

Typical interspersed upland areas on the constructed terrace, taken 11/25/22.

2.2.2 Uplands

The upland grassland area to the north of the constructed terrace appears to have been minimally disturbed in the recent past and contains a more native plant assemblage than the upland areas on the constructed terrace (**see photos below**). Common plants in this area include Blue Grama, Spreading Buckwheat, and Plains Pricklypear, with scattered Twoneedle Pinyon (*Pinus edulis*) along the western edge.

This area contains the same coarse soils found in the uplands of the North Section, namely Dominson gravelly sandy loam, 1 to 9 percent slopes (DoD) and Gravelly alluvial land (Gv) (NRCS 2023;). These soils are developed on glacial outwash and alluvial fan deposits and are considered somewhat excessively drained with low water-holding capacity.



Upland areas; Gv soil type (left) and DoD soil type (right), taken 7/25/23.

3.0 Methods

This section provides a summary of the monitoring methods. A more detailed description is provided in **Appendix A**.

3.1 Wetland Vegetation

Dr. Jeremy Sueltenfuss, Mr. Andy Herb, and Dr. Jeremy Shaw measured the percent foliar cover of vegetative species using line-quadrat methodology (Caratti 2006) on 14 vegetation transects in the North Section wetlands on July 24 and 25, 2023. A 1 foot by 1 foot square quadrat was placed along alternating sides of each transect at 5-foot intervals. The foliar cover of all vegetation species within the quadrat was visually estimated and used to calculate the average percent cover of each species on each transect. The wetland vegetation monitoring and analysis are intended to evaluate changes in vegetation and identify any potential impairments at the site from current and past land management.

3.2 Upland Vegetation

Dr. Jeremy Shaw and Mr. Andy Herb documented the conditions of soils, vegetation, and animal use to quantitively assess the ecological functioning of upland ecosystems on July 24 and 25, 2023. The methods for monitoring uplands were updated in 2023 to better assess the health and productivity of native plant communities in accordance with the conservation easement (CPW 2022) and included data collected using both wandering and fixed transects.

The wandering transects are collocated with the fixed transects DoD, DoF, Gv, and SsC. The transects were used to collect data in randomly located and nested plots within each soil type, following the protocol previously employed by CMC and described in Butterfield et al. (2006). Data for each transect were summarized as the relative frequency of categorical indicators and perennial plant species, and the mean distance to perennial plants.

The data collected on the fixed transects was stratified by soil type and consisted of systematic sampling along seven 300-foot transects that are monumented with rebar or fenceposts. The absolute cover of herbaceous plant species, litter, and bare soil was quantified using a modified Daubenmire method in 0.5 by 0.5 meter quadrats located every 15 feet along the transects, while woody vegetation cover was estimated using the line-intercept method (BLM 1999). The presence of herbivory and signs of large and small animals were also recorded in each quadrat. This updated sampling approach was adopted to increase the precision and repeatability of wandering transect monitoring data (AlpineEco 2023a) and to align with the wetland transect monitoring approach in use since 2010 (AlpineEco 2023b).

3.3 Noxious Weeds

Mr. Andy Herb walked the BHSSWA on May 18, July 24 and 25, and November 8, 2023 to identify Colorado-listed noxious weeds. If discrete populations of noxious weeds targeted for treatment were present, the extents were mapped in the field on 1-inch equals 200-foot scale aerial photographs and recorded using a global positioning system (GPS) device. Relative distribution in suitable habitat was also recorded for any observed noxious weed species.

3.4 Hydrology

Hydrologic monitoring and data collection has been performed by contractors of BlueTriton Brands, currently SSPA. Dr. Jeremy Shaw conducted a hydrologic trend analysis on data collected since 2009. The data set analyzed includes approximately monthly groundwater elevations from ten piezometers and mean daily discharge at two Parshall flumes on the outflow channel of Bighorn Springs (**Figure 5**). Long-term changes in spring discharge, pressure heads, and vertical hydraulic gradients were assessed using the Mann-Kendall test for monotonic trends (Mann 1945), and rates of change were estimated using the Theil-Sen slope coefficient (Sen 1968).

3.5 Photo Documentation

Permanent photo points were established when monitoring began in 2010, and photos have been taken most years of monitoring. The North Section has 16 photo points, including six that were established in 2010 (1 through 6) and ten that were added by AlpineEco (7 through 12 in 2021 and 13 through 16 in 2023). These points are shown on **Figures 4 and 5** and the photographs are in **Appendix D**.

The South Section has 15 photo points, including ten that were established in 2012 (1 through 10) and five that were added by AlpineEco in 2023 (11 through 15) (**Figure 6**). Photos are taken from all the points in the summer (usually July) and from points 1 through 12 in the fall (usually November). The summer photographs are in **Appendix E** and fall photographs in **Appendix F**.

4.0 Results and Discussion

Information in this section has been intentionally kept succinct so that the key points may be easily and quickly obtained. Additional data and discussion are provided in **Appendix B** (*Additional Quantitative Data*), **Appendix C** (*List of Plant Species Observed*).

4.1 North Section

4.1.1 Wetland Vegetation

Key Points

- Total vegetation cover ranges from 51 to 95 percent and was 14 percent higher than the long-term average across the entire site.
- Native wetland vegetation cover has largely remained stable since 2010. Although the previously documented declines in Transect 2-3 are significant from the beginning of the monitoring period, the vegetation cover has been relatively stable since 2017.
- Canada Thistle populations are increasing in two transects (and were subsequently treated), though no change occurred in other problematic species or species that may indicate drying conditions.

All five wetlands have higher total vegetation cover in 2023 compared to 2022, with a sitewide average increase of 14 percent (**Table 6**). Eleven of the 14 transects have higher cover than their long-term average, and two of the three transects with lower cover than their long-term average differed by less than 5 percent. Because local precipitation in 2023 was similar to 2022 and 2021 (CSU 2023), the overall increase in vegetation cover may be a result of the absence of cattle grazing for the second year in a row. Degradation from cattle grazing across the site was noted in 2021, and the absence of grazing since then has led to an increase in vegetation cover and reduced erosion on steeper slopes.

Table 6: Total Vegetation Cover in the North Section Wetland Area

Transect	Total Vegetation Cover (%)			
	2022	2011-2022 Average	2023	Difference Between 2023 and the 2011-2022 Average
2-01	43	61	51	-10
2-02	46	46	54	8
2-03	43	64	79	15
2-04	48	67	87	21
2-05	73	76	80	4
2-06	45	64	61	-3
2-07	77	73	74	0
2-08	71	79	95	16
2-09	80	78	81	4
2-10	55	69	89	20
3	66	67	80	13
4	42	60	81	21
5	46	54	85	31
6	35	62	60	-2
Average	**55**	**62**	**76**	**14**

Transect 2-1 has the largest decline in overall vegetation cover compared to the long-term average, with a reduction of 10 percent. This transect has significant buildup of dry tumble weeds (*Salsola spp.*) as well as a notable outbreak of Canada Thistle which appears to be limiting access to light for the native herbaceous layer.

Wetland 2 remains the highest quality wetland, with ample groundwater discharging from the hillside and robust cover of native wetland vegetation. Although Wetlands 3, 4, and 5 have higher vegetative cover than in 2022, they each show signs of drier conditions. The increase in cover in each wetland is attributable to an increase in drier (upland) plant species, and lower vigor in the wetland vegetation around the margins of each wetland. If this trend continues, a reduction in wetland area and/or a conversion to a drier plant community is expected. This general trend of drier conditions was also noted in 2022. Although the specific mechanism remains unknown, the drier conditions at these wetlands across multiple years may be the result of altered irrigation practices up-valley (north of BHSSWA) leading to a reduction in groundwater discharge at these locations.

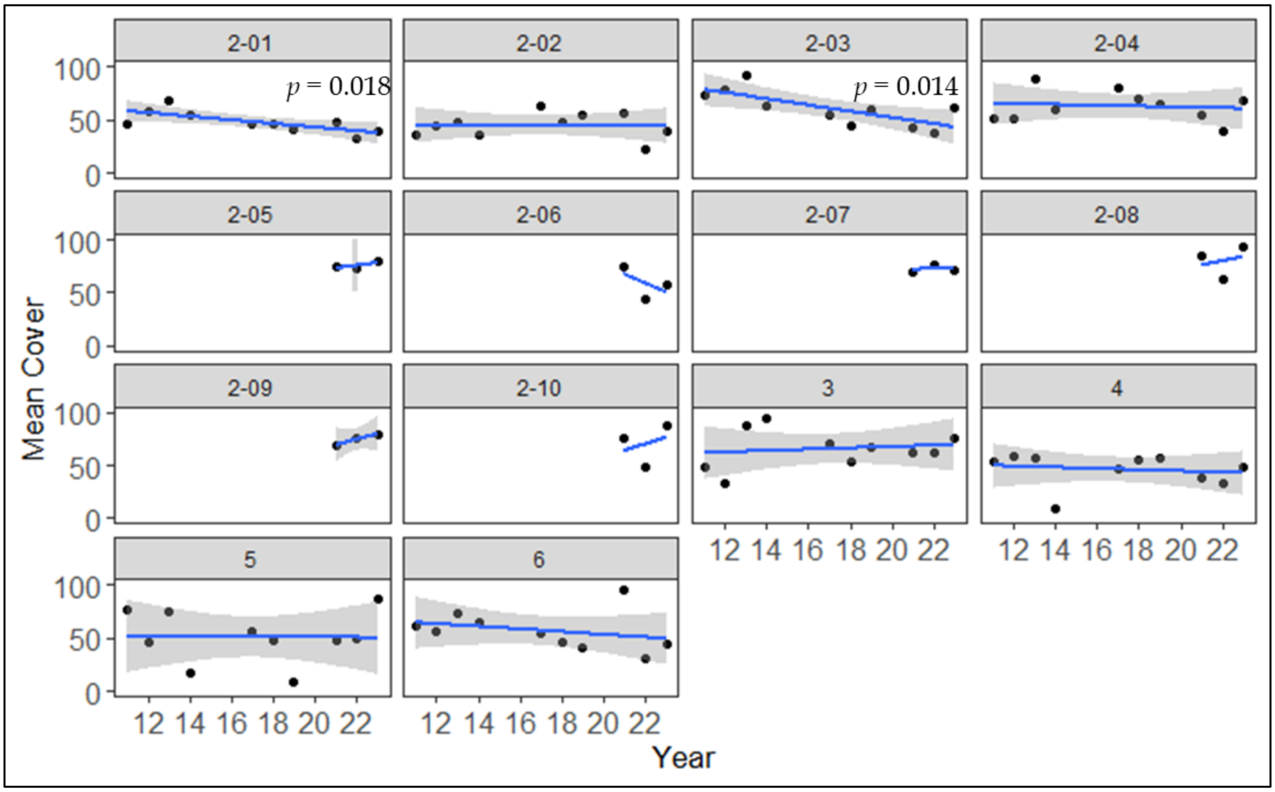
The dominant plant species throughout the wetland complex include Kentucky Bluegrass (*Poa pratensis*), Nebraska Sedge, Baltic Rush (*Juncus arcticus* ssp. *littoralis*), and Narrowleaf Willow, with various species of Gooseberry/Currant (*Ribes* spp.) around the perimeter. The dominant species in Wetland 2 (**see photo**) include various species of willows, sedges (*Carex* spp.), rushes (*Juncus* spp.), and horsetail (*Equisetum* spp.), all of which are commonly found in mountain wetlands of Colorado. Willows and sedges are also dominant in Wetlands 3, 4, and 5 (**see photo**), though these wetlands have a much higher cover of Kentucky Bluegrass and Baltic Rush as well, indicating drier conditions.

Since last year, the average Wetland Indicator Rating (a measure of the plant community's affinity for wetland conditions) is significantly higher (drier) for Wetland 6 and significantly lower (wetter) for Wetland 3, with no significant change for Wetlands 4 and 5. The average Wetland Indicator Rating for nine of the 10 transects in Wetland 2 has not significantly changed since 2010 and has decreased (become wetter) for Transect 2-10. Although the Wetland Indicator Rating has decreased for Wetland 3 since 2010, it has remained stable over the last 6 monitoring years. Similarly, although the Wetland Indicator Rating has not significantly changed since 2010 for Wetlands 4 and 5, it has dramatically increased (become drier) since 2016.

Wetland 2 (left) and the terrace containing Wetlands 3 through 5 (right), taken 7/24/23. All wetlands are well-vegetated, though Wetlands 3 through 5 are shifting towards drier species.

Native vegetation cover has not significantly changed since 2010 for Wetlands 3, 4, 5, or 6, and has not changed for eight of the 10 transects in Wetland 2. Although native vegetation cover has significantly decreased through time for Transects 2-01 ($p = 0.018$) and 2-03 ($p = 0.014$) (**Figure 7**), it has remained stable for the past six years of monitoring and native vegetation cover in 2023 was higher than in 2022. Declines that were observed and noted in 2022 in other transects did not continue in 2023.

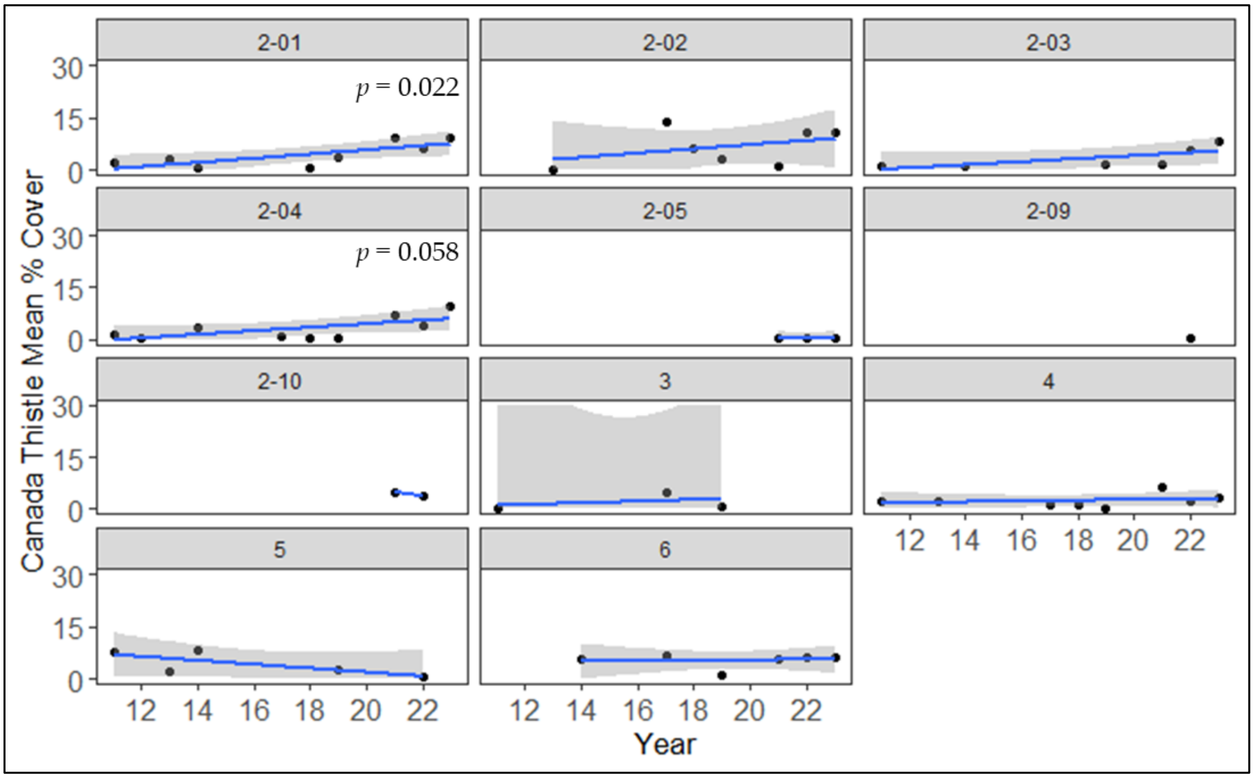
Figure 7: Native Wetland Vegetation Cover in the North Section



Black dots are the average cover for each transect. Blue line is the best linear fit through the data, with the shaded region indicating the 95 percent confidence interval in the regression line (p = 0.05).

Multiple Colorado-listed noxious weeds and other non-native species are found in each transect, but the cover of each species is less than 10 percent. The most problematic species occurring in higher densities include Canada Thistle (List B noxious weed), Field Bindweed (List C noxious weed), and the non-native Burningbush. Field Bindweed and Burningbush abundance has not increased since 2010, but Canada Thistle is increasing in transects 2-01 and 2-04 (**Figure 8**). These populations were mapped (see *Section 4.1.3 Noxious Weeds*) and are being managed according to the *Noxious Weed Management Plan* (**Appendix G**).

Figure 8: Canada Thistle Cover in Wetlands in the North Section



Black dots are the average cover for each transect. Blue line is the best linear fit through the data, with the shaded region indicating the 95 percent confidence interval in the regression line ($p = 0.05$).

4.1.2 Upland Vegetation

Key Points

- Healthy and productive native plant communities are present on DoD and SsC soils.
- Vegetation in the Gv and DoF soils continues to reflect past disturbance from cattle grazing (mainly prior to BlueTriton Brands ownership), changes in up-valley irrigation practices (especially DoF), and pipeline installation.
- No State-listed noxious weeds were encountered in the upland transects except DoF.
- Litter cover and animal use varies across the site but generally reflect healthy and productive upland ecosystems.

Monitoring data from the four newly established fixed transects illustrates the diversity of upland ecosystem types in the North Section (**Figure 4**). Xeric soil types support primarily perennial bunchgrasses and annual herbs with scattered shrubs and subshrubs. Blue Grama is dominant along the DoD and SsC transects, where woody plants are rare. Vegetation along the Gv transect is almost exclusively the non-native annual herb Burningbush, with occasional shrubs consisting of Rubber Rabbitbrush (*Ericameria nauseosa*) and Prairie Sagewort (*Artemisia frigida*). Woody plants are absent from the Gv2 transect, located within the pipeline corridor on the Gv soil type, and herbaceous vegetation is mainly Sand Dropseed, Prairie Sagewort seedlings, Blue Grama, and

Burningbush. The more mesic DoF transect also lacks woody plants and is dominated by Field Bindweed (List C noxious weed) and Burningbush, with lesser amounts of Kentucky Bluegrass and Western Wheatgrass. Refer to **Appendix C List of Plant Species Observed** to see which species occur and whether they are native to Colorado.

Total vegetation cover is comprised primarily of herbaceous plants and varies considerably between transects (**Table 7**). Herbaceous cover along the mesic DoF transect is the highest of all upland transects at 109 ± 6 percent (mean ± standard error) and is lowest along the Gv transect (18 ± 3 percent). Woody vegetation cover was sparse, ranging from 1 to 4 percent where present, but no woody plants were encountered along the DoF or Gv2 transects. Significantly higher herbaceous and woody plant cover in the Gv3 transect of the South Section (See *Section 4.2.2 Upland Vegetation*) demonstrate unrealized ecological potential on the Gv soil type in the North Section.

Table 7: Average Cover of Upland Vegetation in the North Section

Transect	Vegetation Cover (%)[1]				
	Herbaceous	Native	Woody	List B Weeds	List C Weeds
DoD	50	50	4	0	0
DoF	109	26	0	8	40
Gv	18	<1	3	0	0
Gv2	38	31	0	0	0
SsC	50	32	1	0	0

[1]Vegetation cover may exceed 100 percent if multiple strata are present (i.e. relative cover).

Low native herbaceous cover along the mesic DoF transect, as well as the xeric Gv and Gv2 transects, are ongoing indicators of ecological impairment in the North Section. The DoF transect has been dominated by State-listed noxious weeds and non-native annuals since at least 2021, and likely reflects a combination of long-term groundwater level declines and disturbance from cattle grazing in previous years (AlpineEco 2023a, 2023b). Native vegetation cover is low in the Gv2 transect and is essentially absent (<1 percent cover) from the Gv transect, which may be attributed to previous disturbance from pipeline installation and the former livestock corral/loading chute. Native herbaceous cover is higher in the remaining North Section transects, where Blue Grama and Sand Dropseed prevailed, and all woody species are native.

Much of the total herbaceous vegetation cover along the DoF transect is comprised of four State listed noxious weeds (**Table 7**). Canada Thistle is the only List B species present, with an average cover of 8 ± 2 percent. Three List C species consisting of Field Bindweed, Cheatgrass, and Quackgrass (*Elymus repens*) average 40 ± 6 percent cover. The prevalence of noxious weeds with wetland indicator statuses of facultative (FAC) (Canada Thistle and Quackgrass) and upland (UPL) (Field Bindweed and Cheatgrass) reflects significant ecological adjustments in this formerly mesic meadow, where groundwater discharge has declined since monitoring began (AlpineEco 2023b). The native hydrophytes and mesophytes that formerly dominated this habitat type are declining as non-native and noxious weed species are expanding. No State-listed noxious weeds were encountered along the other upland transects, which are on more xeric soil types.

Litter cover and animal use varied across the North Section but generally reflect healthy and productive upland ecosystems. The comparatively low rate of litter accumulation along the Gv2 transect (20 ± 4 percent) corresponds to the highest amount of bare soil among all transects (57 ± 5 percent) and is likely a result of slow recovery from the pipeline installation in 2009 (**see photo**). While large animal signs are not detected in the DoF transect, small animal signs occur here at the highest frequency (71 percent) and consist primarily of pocket gopher burrows (**see photo**). The frequency of large animal scat and tracks (bighorn sheep and/or mule deer) range from 24 to 67 percent along the other transects, while the frequency small animal signs range from 10 to 19 percent.

Bare ground plot on Transect Gv2 (left) and pocket gopher burrows on Transect DoF (right), taken 7/24/23.

In summary, healthy and productive native plant communities are present along the DoD and SsC transects, while impairments to ecological functioning are evident in other uplands of the North Section. Total and native vegetation cover is low on the xeric Gv soil type, likely due in part to past disturbance. The Gv transect, near a former corral and loading chute, currently supports mostly non-native annuals. The Gv2 transect in the pipeline corridor contains more native species, but litter accumulation and soil development have been slow. While total and native vegetation cover is higher in the DoD and SsC transects, reference conditions from literature sources indicate that a more diverse native perennial bunchgrasses community containing Prairie Junegrass (*Koeleria macrantha*) and Needlegrass (*Achnatherum* spp.) should be present (Fletcher 1975; USDA 1977). These sources also suggest that the dominance of Blue Grama on the Gv, SsC, and DoD soil types is likely due to past overgrazing. Analysis of the wandering transect data and literature reviews as part of previous monitoring efforts suggest that uplands of the North Section were severely overgrazed prior to acquisition by BlueTriton (AlpineEco 2023a). In the absence of further disturbance, the health and productivity of native plant communities may improve in the North Section, but the pathways for recovery remain uncertain. It is plausible that past disturbance coupled with climate change and drought-prone soils have resulted in an alternative stable state, where the formerly diverse bunchgrass communities may not easily re-establish.

Conditions in the mesic DoF transect are also far below their ecological potential. Although total vegetation cover is high, noxious weeds and non-native species dominate this soil type. Reference conditions from literature sources indicate that intact DoF habitats support primarily wetland plants (USDA 1975), but the abundance of wetland species has decreased while undesirable species have increased since monitoring began (AlpineEco 2023a), and this corresponds to observed declines in groundwater levels and spring discharge (AlpineEco 2023b). If the drying trend continues in this mesic meadow habitat, non-native and noxious weed species will likely increase as the remaining wetland vegetation dies. Since restoring the historic plant community may not be possible due to ongoing hydrologic changes, management actions such as weed control and establishing deep-rooted native species may be prudent.

4.1.3 Noxious Weeds

Key Points

- Canada Thistle occurrences have increased since last year, despite being treated with rust fungus in 2022.
- Bull Thistle occurrences have increased since last year and many were mechanically removed in June and August.
- Discrete populations of Canada Thistle were treated with herbicide in September since the rust fungus appeared to be ineffective.
- Discrete populations of Bull Thistle were treated with herbicide in September.

A total of eight Colorado-listed noxious weeds (CDOA 2023) have been observed in the North Section since 2021 (AlpineEco 2022), including three List B and five List C species. These species are listed in **Table 8**, along with their listing status, general habitat preference, and relative distribution. More information about these species and their management is provided in the *Bighorn Springs Weed Management Plan* in **Appendix G** and a summary of the management actions taken this year is provided in *Section 1.3 Site Maintenance*.

Table 8: Colorado-Listed Noxious Weeds Observed in the North Section

Common Name[1]	Scientific Name[1]	Status[1]	General Habitat Preference	Relative Distribution in Suitable Habitat[2]
Cheatgrass	*Bromus tectorum*	C	Open uplands	Few
Canada Thistle	*Cirsium arvense*	B	Open riparian areas and other moist sites	Common
Bull Thistle	*Cirsium vulgare*	B	Open riparian areas and other moist sites	Common
Field Bindweed	*Convolvulus arvensis*	C	Open uplands and riparian areas	Abundant
Quackgrass	*Elymus repens*	C	Open riparian areas and other moist sites	Common
Redstem Stork's Bill	*Erodium cicutarium*	C	Open uplands	Common
Oxeye Daisy	*Leucanthemum vulgare*	B	Open riparian areas and other moist sites	Few
Common Mullein	*Verbascum thapsus*	C	Open uplands	Few

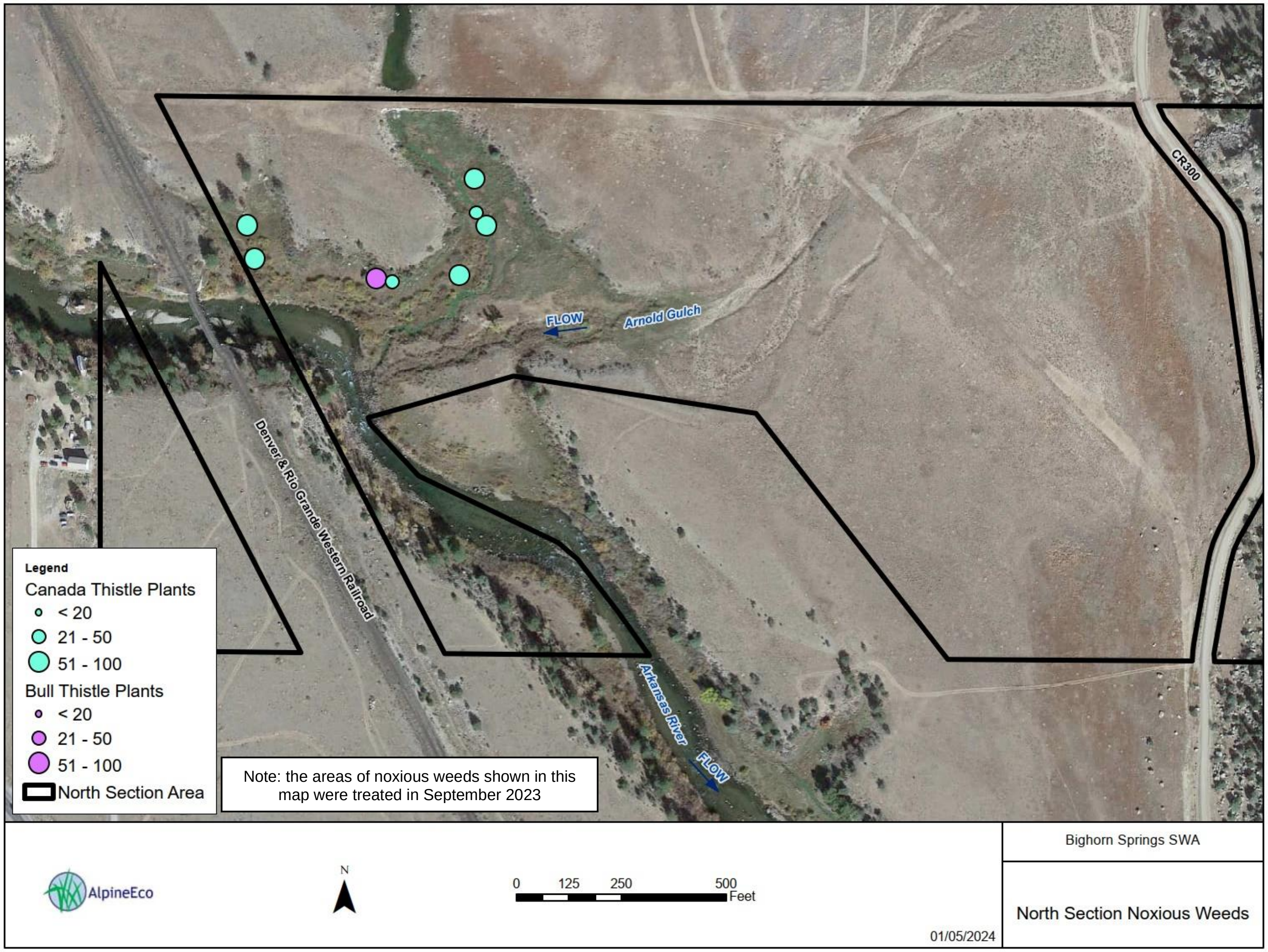
[1] Plant names follow USDA, NRCS (2023) and status from CDOA (2023); List B = State mandate to stop the continued spread of these species; List C = State mandate to provide additional education, research, and biological control resources for these species

[2] Relative distribution in suitable habitat: few = <1 percent cover; common = 1 to 5 percent cover; abundant = >5 percent cover based on visual estimates

While all three of the observed List B species were found at Bighorn Springs, only Canada Thistle and Bull Thistle (**see photos below**) are present in dense or discrete enough populations to be mapped. Seven discrete populations of Canada Thistle and one of Bull Thistle were mapped (**Figure 9**), but both are common and widely scattered throughout the drier portions and perimeter of the wetland complex. Relatively few Oxeye Daisy plants were observed widely scattered in the lower part of the wetlands close to the river. The five List C species are common around the wetland edges, especially Field Bindweed.

Canada Thistle was treated with rust fungus in 2022 and according to the treatment protocol was not to be treated with herbicide for at least two years if the fungus is well-established (see the *Noxious Weed Management Plan* in **Appendix G**). Since little fungus was observed in May 2023 during a visit with the County Weed Department and the Canada Thistle populations were observed to be noticeably expanding in July, the County recommended treating it with herbicide and it was treated in September.

Figure 9: North Section Noxious Weeds in July 2023



Dense Canada Thistle (left, taken 7/25/23) and scattered Bull Thistle (right, taken 9/26/23).

4.1.4 Hydrology

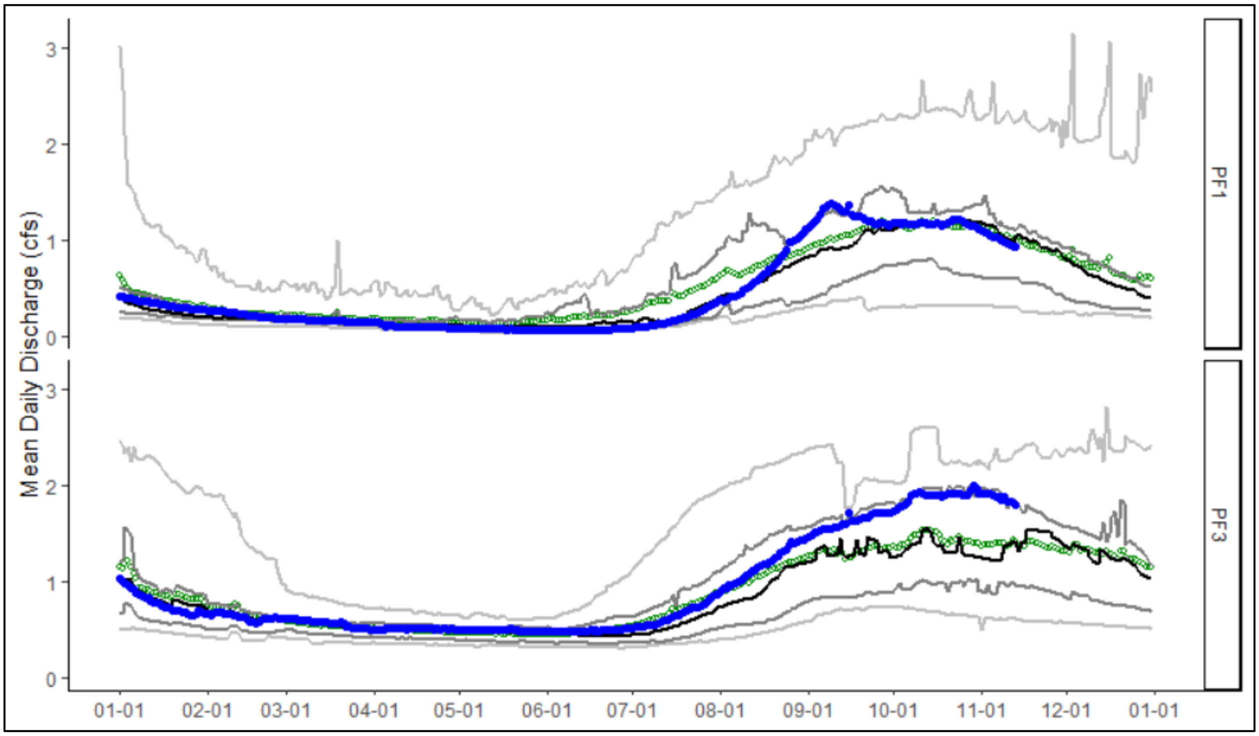
Key Points

- Spring discharge and groundwater dynamics in the North Section wetlands were within the typical range of variability during 2023
- Spring discharge and water levels in shallow piezometers within Wetland 2, the most hydric wetland in the North Section, have declined slightly since monitoring began in 2009
- No long-term trends are apparent for groundwater conditions in the drier Wetlands 3 through 6 where soil saturation is comparatively brief and infrequent
- Groundwater flow to BHS and associated wetlands is strongly coupled to localized recharge from irrigation north of BHSSWA, which produces a novel hydrologic regime

Spring Discharge

Groundwater discharge from BHS during 2023 was within the range of typical values observed since 2009 (**Figure 10**). Discharge from the upper BHS complex (PF1) was similar to the long-term median throughout the growing season (May 28 to September 20). Discharge at PF3 near the confluence with the Arkansas River was also near median values for the first half of 2023 but increased during the summer to reach the 75th percentile of all observations by October. More detailed results and discussion are available in **Appendix B**. SSPA staff noted potential sensor drift that could inflate discharge measurements at PF3 during the 3rd quarter of 2023 and will assess the need for sensor recalibration in early 2024. SSPA staff also noted a bypass around the flume, which was most pronounced during the high-water season.

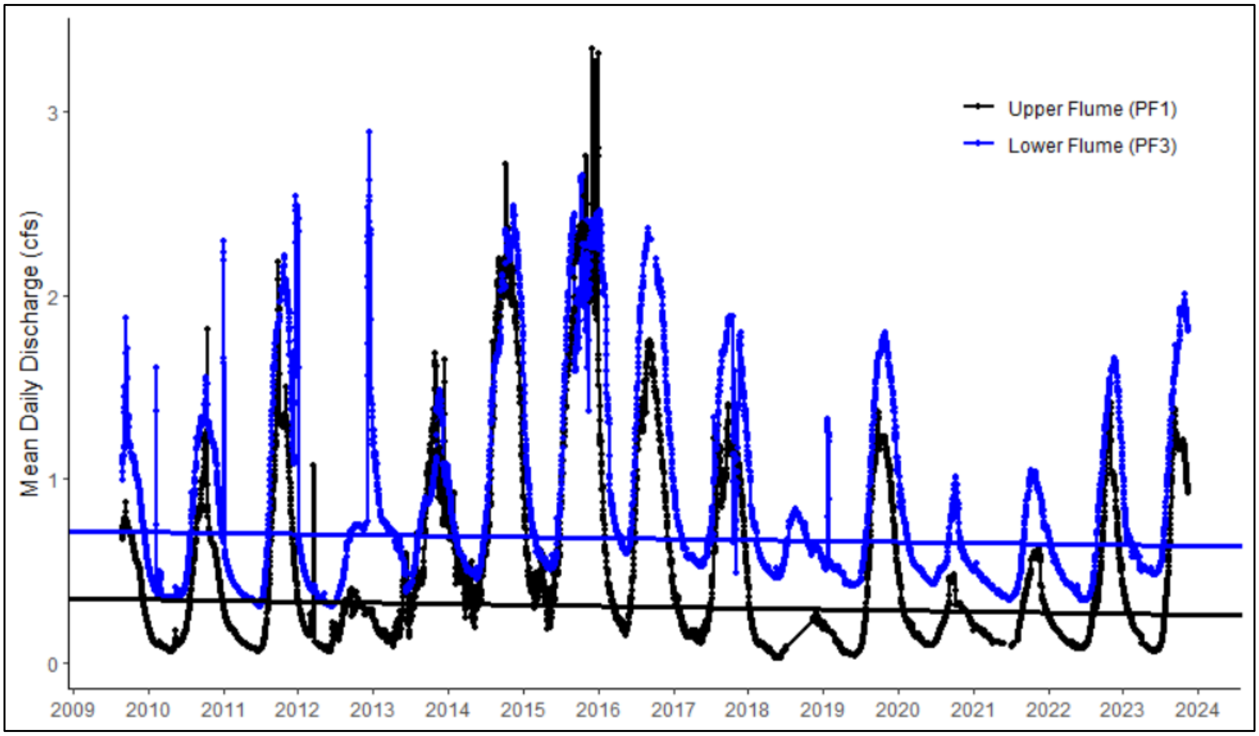
Figure 10: BHS Spring Discharge During 2023



Note: Blue lines are 2023 data. Green circles are 2009-2023 averages, while light grey lines are 1st and 99th percentiles, dark gray lines are 25th and 75th percentiles, and black lines are medians.

Median discharge at PF1 during 2023 exceeded the previous two years, while PF3 had the highest median discharge since 2017. However, median annual discharge at both flumes has decreased since monitoring began in 2009 ($p < 0.001$), declining by about 2.0 percent per year at PF1 and 0.7 percent per year at PF3 (**Figure 11**). Median spring discharge during the growing season (May 28 to September 20) has also declined at PF1 since 2010 ($p = 0.004$), but a significant trend was not apparent for PF3 ($p = 0.43$), although the results for PF3 should be interpreted with caution until the accuracy of the 2023 data is verified. Median growing season discharge at PF1 declined by about 4.6 percent per year. Long-term reductions in groundwater discharge from BHS do not appear to be related to increased evapotranspiration losses since total vegetation cover and wetland vegetation cover has not changed substantially since monitoring began, and significant changes to growing season discharge have not occurred at PF3. Instead, the available hydrologic data indicate that these changes are due to declining water levels throughout the surficial aquifer dating back to at least 2008 (AlpineEco 2023d), which is prior to the start of BlueTriton Brands groundwater withdrawals in the South Section.

Figure 11: Spring Discharge at BHS Since 2009



Note: Fitted lines are Mann-Kendall trends estimated from Theil-Sen slopes.

Seasonal patterns of spring discharge since 2009 suggest that the hydrologic regime of the BHS wetland complex is profoundly influenced by subsurface recharge from excess irrigation applied on upgradient parcels. Long-term fluctuations in mean and median daily discharge at both flumes correspond to local irrigation schedules, reaching their annual maxima during autumn after being recharged throughout the growing season. This contrasts sharply with natural hydrologic variation in groundwater-supported wetlands of the Rocky Mountains, which typically display water level maxima in early spring and decline throughout the growing season. Monitoring well data within the vicinity of BHSSWA indicate that water level fluctuations in the surficial aquifer east of the Arkansas River are driven largely by recharge from excess irrigation in agricultural areas to the north (AlpineEco 2023d).

Piezometer Water Levels

Piezometer water levels in the North Section wetlands during 2023 were consistent with previous years observations. Seasonal water level fluctuations in piezometers are broadly congruent with variations in spring discharge and surficial aquifer water levels. The deepest water levels occur during May or June, and the shallow piezometers in less hydric wetlands (P3S, P4S, P5S, and P6S) are typically dry throughout the spring and early summer months. Water level maxima occur during September in most wetlands, although the peaks are later in Wetland 2. Variability in the timing and magnitude of water level fluctuations and groundwater flow directions create distinctive hydrologic regimes across the wetland complex.

Piezometers in the western part of Wetland 2 (P1S/P1D) reflected perennial artesian conditions and the most hydric wetland environment in the North Section of BHSSWA. Pressure heads within the root zone have declined since 2009 (P1S; p = 0.002) but those at 4.5 feet depth have been stable (P1D; p = 0.58). It appears that shallow perched aquifer conditions have become less frequent in this area, but upward groundwater fluxes maintain soil saturation and discharge at the soil surface. Piezometers in the eastern part of Wetland 2 (P2S/P2D) show that the root zone is consistently near saturation, with seasonal artesian conditions from 4.67 feet depth (P2D) during the autumns of 2010-2011, 2015-2018, and 2023. As with the western part of Wetland 2, water levels in P2S showed some evidence of decline since 2009 (p = 0.050), but no statistically significant changes were apparent in P2D (p = 0.49) or associated vertical hydraulic gradients (VHGs) (p = 0.49) due to large seasonal variability.

The less hydric Wetlands 3, 4, 5, and 6 experience larger seasonal water level fluctuations and less groundwater discharge than Wetland 2 due to their location south of the BHS outflow channel, which intercepts shallow groundwater (**Figure 5**). Upwelling groundwater briefly creates artesian conditions in Wetland 3 (P3S/P3D) during autumn months, although the root zone (P3S) is generally unsaturated during the first half of the year. Wetland 6 has lower seasonal water levels and pressure heads, and the root zone is commonly dry during much of the growing season. Pressure heads at shallow depths in Wetland 4 (P4S) are similar to those in Wetland 3 (P3S), with water levels rising to near or slightly above the ground surface at the end of the growing season and otherwise falling below the piezometer opening. Wetland 5 is the driest wetland in the North Section, with root-zone saturation occurring only briefly during the fall and winter months in seven of the last 15 years. No long-term trends are apparent for pressure heads or VHGs in these wetlands ($p \leq 0.085$).

As with spring discharge, seasonal water level and VHG fluctuations in the wetland complex appear to be tightly coupled to irrigation practices on agricultural parcels to the north. In all wetlands, water levels are deepest during the spring and reach their maxima during the latter part of the growing season. This contrasts with the characteristic hydrologic signature of sedge-dominated fens elsewhere in the region, where groundwater discharge is typically highest during spring and early summer, then declines throughout the growing season when the evapotranspiration (ET) demand is highest (Cole, et al. 1997). Median water table elevations in the surficial aquifer have declined slightly since 2008 (AlpineEco 2023b), but thus far this has only affected the northern portion of the wetland complex, where hydraulic connections to the surficial aquifer are strongest. Spring discharge and pressure heads in shallow piezometers within Wetland 2 (P1S and P2S) have declined since monitoring began in 2009, but no declines were apparent in deeper piezometers at Wetlands 2 (P1D and P2D) or in wetlands south of the BHS outflow channel that intercepts shallow groundwater flow. Similar long-term declines have occurred in monitoring wells and spring discharge at Ruby Mountain Springs (AlpineEco 2023d) and a broader analysis of hydrologic data suggests that these fluctuations are not related to groundwater withdrawals by BlueTriton Brands (SSPA 2023).

The dependence of BHS wetland hydrology on upgradient irrigation practices unrelated to BlueTriton Brands management raises questions about the long-term sustainability of the site. The available data suggest that prior to nearby agricultural development, the water table in the surficial aquifer would have been lower and the hydroperiod within current wetlands at BHS may have been more similar to a typical hydrologic signature of high water levels in the spring and lower in the late summer. Any reductions in upgradient irrigation rates or cultivated acreage could lead to compositional shifts or declines in wetland vegetation, and ecological conditions of the site without the subsidy of excess irrigation are unclear. Long-term declines in groundwater discharge and vegetation shifts have occurred since monitoring began, but their relationship to offsite irrigation practices has not been analyzed to our knowledge.

4.2 South Section

4.2.1 Wetland Vegetation

Key Points

- Wetlands are present around the constructed ponds and channels, and are managed to enhance recreational and educational (e.g. trimming willows to maintain trails and increase pond visibility).
- Canada Thistle, Bull Thistle, and Oxeye Daisy are in and around the wetlands, and are being actively managed.
- Planted and volunteer Narrowleaf Cottonwood trees are healthy and robust.

Qualitative data (visual inspection) confirms the presence of the small wetlands and associated riparian habitats along the edge of the constructed ponds and channels. These areas are in similar condition as previous years, with the most notable issues being the presence of three List B noxious weeds (Canada Thistle, Bull Thistle, and Oxeye Daisy), and the regular removal of willows to maintain trail access and pond viewing opportunities. The weeds occur at relatively low densities and are being managed in coordination with the County Weed Department (see *Sections 1.3 Site Maintenance* and *Section 4.2.3 Noxious Weeds*). The willow removal is necessary in many locations but as previously reported (AlpineEco 2023c), excessive clearing around the ponds reduces wetland function, contributes to higher water temperatures and algae growth, and likely increases predation of fish. Robust willow regrowth since last year was observed during the July site visit but was removed in late summer (**see photos below**).

Willow regrowth since 2022 (left, taken 7/25/23) and recently trimmed willows (right, taken 11/8/23).

Nearly all the Narrowleaf Cottonwood trees planted in 2021 are alive and healthy, and several volunteer saplings were observed (**see photos**). When these trees mature, they will provide shade for the ponds and add another vegetation layer to the wetland/riparian plant community, thereby increasing the quality of the wildlife habitat. Protecting these trees from beavers (e.g., wire cages) is critical to ensure their long-term presence.

Healthy planted Narrowleaf Cottonwood (left) and volunteer sapling (right), taken 7/25/23.

No quantitative data have been collected for wetland vegetation in the South Section since the area is intensively managed for recreation and education. The narrow fringe wetlands along pond and channel margins are novel (created by the reclamation work in 2012) and subject to regular vegetation modifications such as willow trimming.

4.2.2 Upland Vegetation

Key Points

- Healthy and productive native plant communities prevail in the South Section.
- Total vegetation cover is high and consists almost exclusively of native species.
- Ample litter protects unvegetated surfaces.
- The South Section appears to be less disturbed and contains more diverse native vegetation than on corresponding soil types in the North.

Like the North Section, fixed transects in the South Section support mainly native perennial bunchgrasses, but the abundance and diversity of woody plant species is higher. Herbaceous cover along both transects is largely Blue Grama, while woody plant cover in the Gv3 transect was provided by Winterfat (*Krascheninnikovia lanata*) and the prostrate cactus Plains Pricklypear. The number and abundance of woody plant species along the DoD2 transect was higher than in any other upland transect and included Plains Pricklypear, Spreading Buckwheat, Parry’s Rabbitbrush (*Ericameria parryi*), Prairie Sagewort, and Granite Prickly Phlox (*Linanthus pungens*).

Data from the fixed upland transects indicate that healthy and productive native plant communities prevail in the South Section. Mean herbaceous cover in monitoring transects ranged from 45 ± 5 percent (Gv3) to 75 ± 5 percent (DoD2) (**Table 9**). Woody plant cover was higher than in the North Section and ranged from 5 percent along the Gv3 transect to 15 percent along the DoD2 transect. Blue Grama and other native species comprise nearly 100 percent of total herbaceous cover, and all woody species encountered in the upland transects were native. Litter cover ranges from 32 ± 3 to 46 ± 3 percent. Bare soil is relatively uncommon in the Gv3 transect (29 ± 3 percent) and is much lower than corresponding Gv transects in the North Section, suggesting that uplands of the South Section have been less disturbed. The frequency of large animal signs in upland transects of the South Section ranges from 29 to 48 percent, while small animal signs range from 29 to 38 percent.

Table 9: Average Cover of Upland Vegetation in the South Section

Transect	Vegetation Cover (%)				
	Herbaceous	Native	Woody	List B Weeds	List C Weeds
DoD2	75	75	15	0	0
Gv3	45	44	5	0	0

While uplands in the South Section are comparatively healthy and productive, there are notable departures from reference conditions (Fletcher 1975; USDA 1977). The prevalence of Blue Grama and the lack of key species such as Prairie Junegrass and Needlegrass suggest that impacts from past grazing practices remain. Future monitoring may reveal continued improvement if protection from livestock is maintained.

4.2.3 Noxious Weeds

Key Points

- Canada Thistle increased since last year but rust fungus infections are also increasing
- Bull Thistle and Oxeye Daisy occurrences have increased since last year
- Many of the Bull Thistle, Oxeye Daisy, and Common Mullein plants were mechanically removed in June and August

A total of eight Colorado-listed noxious weeds (CDOA 2023) have been observed in the South Section since 2021 (AlpineEco 2022), including three List B and five List C species. These species are listed in **Table 10**, along with their listing status, general habitat preference, and relative distribution. More information about these species and their management is provided in the *Bighorn Springs Noxious Weed Management Plan* in **Appendix G** and a summary of the management actions taken this year is provided in *Section 1.3 Site Maintenance*.

Table 10: Colorado-Listed Noxious Weeds Observed in the South Section

Common Name[1]	Scientific Name[1]	Status[1]	General Habitat Preference	Relative Distribution in Suitable Habitat[2]
Cheatgrass	*Bromus tectorum*	C	Open uplands	Few
Canada Thistle	*Cirsium arvense*	B	Open riparian areas and other moist sites	Common
Bull Thistle	*Cirsium vulgare*	B	Open riparian areas and other moist sites	Common
Field Bindweed	*Convolvulus arvensis*	C	Open uplands and riparian areas	Abundant
Quackgrass	*Elymus repens*	C	Open riparian areas and other moist sites	Common
Redstem Stork's Bill	*Erodium cicutarium*	C	Open uplands	Common
Oxeye Daisy	*Leucanthemum vulgare*	B	Open riparian areas and other moist sites	Few
Common Mullein	*Verbascum thapsus*	C	Open uplands	Few

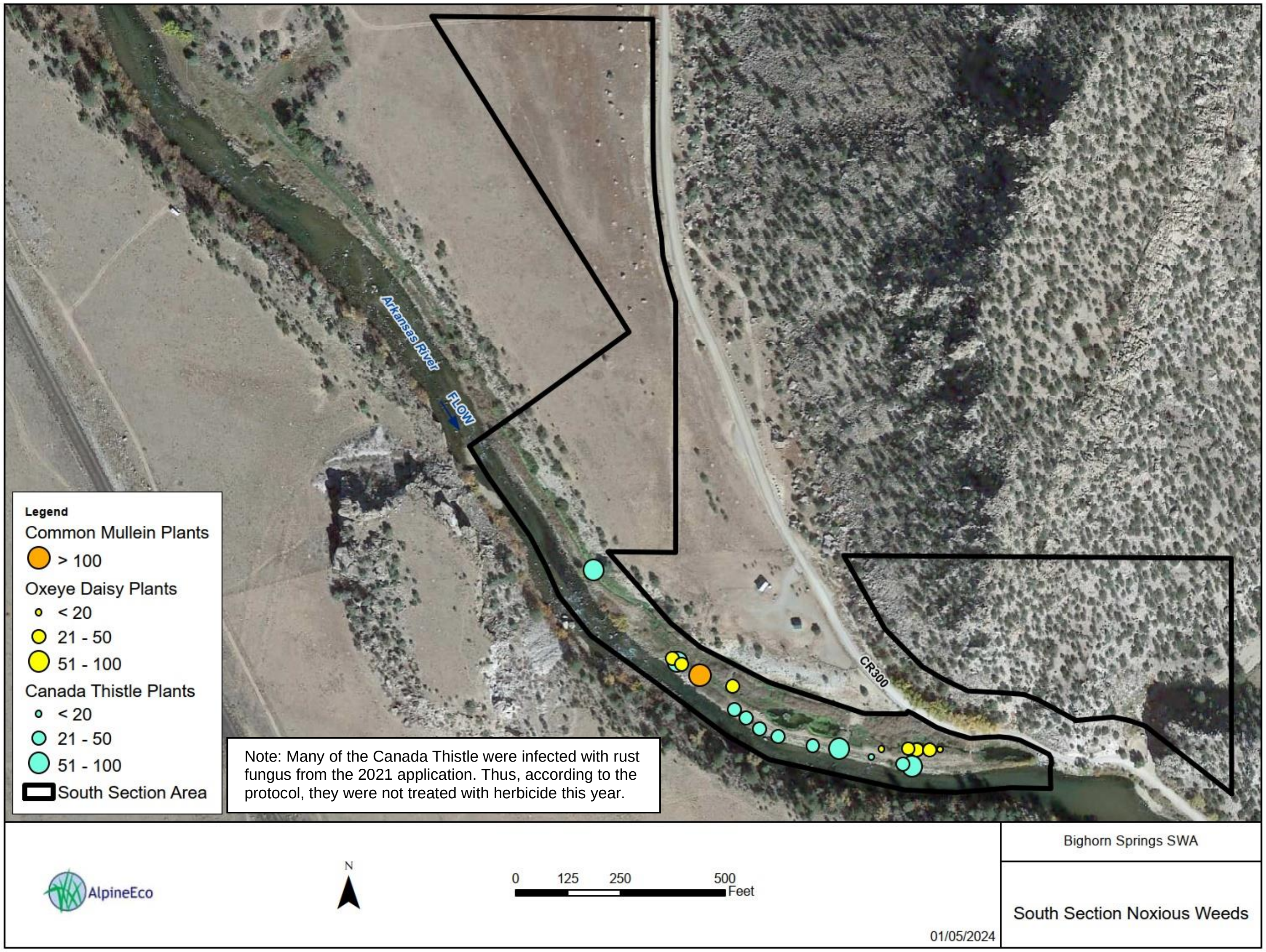
[1] Plant names follow USDA, NRCS (2023) and status from CDOA (2023); List B = State mandate to stop the continued spread of these species; List C = State mandate to provide additional education, research, and biological control resources for these species

[2] Relative distribution in suitable habitat: few = <1 percent cover; common = 1 to 5 percent cover; abundant = >5 percent cover based on visual estimates

There are more discrete populations of two of the List B species (Canada Thistle and Oxeye Daisy) compared to last year and were mapped as points with the approximate number of individuals present (**Figure 12)**. Occurrences of the third List B species (Bull Thistle, **see photo**) are also higher than in 2022 but it was not mapped because the plants occur at significantly lower densities. All five List C species were observed and were most common along the walking paths, but Common Mullein (**see photo**) is the only species mapped and targeted for control (mechanical removal).

Canada Thistle was treated with rust fungus in 2021 and according to the treatment protocol was not to be treated with herbicide for two or three years if the fungus is well-established (see the *Noxious Weed Management Plan* in **Appendix G**). During a site visit with the County Weed Department in May 2023, fungus was observed in several new areas and appeared to be well-established. According to the protocol and as advised by the County, no Canada Thistle populations were treated with herbicide this year.

Figure 12: South Section Noxious Weeds in July 2023



Note: Many of the Canada Thistle were infected with rust fungus from the 2021 application. Thus, according to the protocol, they were not treated with herbicide this year.

Bull Thistle that has set seed (left) and Common Mullein seedlings (right), photos taken 11/8/23.

4.2.4 Hydrology
All hydrological information for the South Section is provided in other reports prepared by SSPA.

5.0 Conclusions

5.1 North Section

5.1.1 Wetland Vegetation

Wetland vegetation in the North Section is recovering from past grazing. Areas with limited vegetation and eroding soils during 2021 are now densely vegetated and show no signs of erosion. Vegetation cover across the wetlands increased in 2023 compared to 2022, and the long-term trends in the vegetation cover show overall stability. Plant communities continue to be largely dominated by native wetland vegetation, though Wetlands 3, 4, 5, and 6 may be transitioning to drier community types. The primary management focus is continuing to treat noxious weeds, namely Canada Thistle, which was treated with rust fungus in 2022 and herbicide in 2023 (since the rust fungus did not establish well).

5.1.2 Upland Vegetation

Uplands in the North Section are largely functioning below their ecological potential. Vegetation recovery has been slow in previously disturbed areas on drought-prone Gv soils. Past overgrazing (before BlueTriton ownership) and groundwater declines (associated with up-valley changes in irrigation) in the DoF soil type has caused a significant ongoing ecological shift towards the dominance of non-native and noxious weed species. While total and native vegetation cover is higher in the DoD and SsC transects, reference conditions from literature sources and from less disturbed part of the South Section with the same soil type indicate that more diverse native plant communities are possible.

Improving the health and productivity of native plant communities in the North Section may be difficult and the outcomes are uncertain. Although monitoring data since 2010 suggest that conditions are slowly improving on xeric soil types, the combination of increasing aridity and drought-prone soils may make it difficult for the diverse native plant communities found in less disturbed sites to re-establish. In the DoF soil type, declining groundwater discharge due to changing offsite irrigation practices and past vegetation disturbance has promoted noxious weeds and non-native annuals where native wetland species formerly occurred. Development of a healthy and productive native plant community here may require the establishment of more drought-tolerant or deeper-rooted species (e.g. willows or other shrubs). Despite these challenges, animal use and soil protection by litter is high in most areas.

5.1.3 Noxious Weeds

Eight Colorado-listed noxious weed species have been previously documented in the North Section and all eight were observed in 2023. Three of the species are List B, which are mandated by the State of Colorado to stop their continued spread; and five are List C, which are voluntarily managed. The List B species (Canada Thistle, Oxeye Daisy, and Bull Thistle) and one List C species (Common Mullein) are most problematic and are prioritized for management. These weeds are mostly scattered around the wetland perimeters and are generally at low densities that cannot be effectively mapped. This year only one well-defined stand of Bull Thistle and seven dense stands of Canada Thistle were mapped during the July field visit.

Effective management of noxious weeds includes a combination of chemical, mechanical, biological, and/or cultural actions. Actions in 2023 included mechanical (hand-removal) of much of the Bull Thistle and Common Mullein, and chemical (herbicide application) for Canada Thistle.

5.1.4 Hydrology

Spring discharge and groundwater dynamics in the North Section wetlands are within the typical range of variability during 2023. Spring discharge at the upper flume (PF1) exceeded the previous years and discharge at the lower flume (PF2) was the highest since 2017. Median annual discharge from BHS has decreased since monitoring began in 2009 by about 2.0 percent per year at PF1 and 0.7 percent per year at PF3. Median spring discharge during the growing season (May 28 to September 20) has declined at a faster rate since 2010 at PF1 (4.6 percent per year), but no changes were apparent for PF3.

Piezometer water levels in the wetland complex during 2023 are consistent with previous years observations. Wetland 2 is perennially saturated from upwelling groundwater and continues to be the most hydric wetland environment in the North Section of BHSSWA. The drier Wetlands 3, 4, 5, and 6 experience larger seasonal water level fluctuations and less groundwater discharge, which severely limits the duration of root zone saturation. Seasonal water levels in shallow piezometers at Wetland 2 have declined slightly since monitoring began in 2009 but no long-term trends are apparent for the other wetlands.

Spring discharge and wetland water levels are strongly coupled to irrigation-induced recharge on agricultural lands to the north. Small but statistically significant reductions in spring discharge and shallow water levels in Wetland 2 do not appear to be related to onsite conditions and are likely a result of declining water levels throughout the surficial aquifer dating back to at least 2008. Artificial recharge from excess irrigation has produced a novel hydrologic regime that is dependent on offsite agricultural activities.

5.2 South Section

5.2.1 Wetland Vegetation

The wetlands in the South Section are narrow fringes along the pond and channel margins that are novel (created by the reclamation work in 2012) and intensively managed for recreation and education. The wetlands are in similar condition as previous years, with the most notable issues being the presence of relatively low densities of three List B noxious weeds (Canada Thistle, Bull Thistle, and Oxeye Daisy) and the regular removal of willows to maintain trail access and pond viewing opportunities. Willow removal is necessary in many locations but extensive clearing reduces wetland function, contributes to higher water temperatures and algal growth, and likely increases predation of fish. Nearly all the Narrowleaf Cottonwood trees planted in 2021 to increase shading of the ponds are alive and healthy, and several volunteer seedlings were observed, which will continue to increase the quality of the wildlife habitat as they mature.

5.2.2 Upland Vegetation

Uplands of the South Section support healthy and productive native plant communities. Total vegetation cover is high and consists mainly of native species, while ample litter protects unvegetated surfaces. The South Section contains more diverse native vegetation than is found on corresponding soil types in the North, suggesting that past disturbances such as overgrazing have been less intense here.

5.2.3 Noxious Weeds

Like the North Section, eight Colorado-listed noxious weed species have been previously documented in the South Section and all eight were observed in 2023. Three of the species are List B, which are mandated by the State of Colorado to stop their continued spread; and five are List C, which are voluntarily managed. The List B species (Canada Thistle, Oxeye Daisy, and Bull Thistle) and one List C species (Common Mullein) are most problematic and are prioritized for management. Well-defined populations of Canada Thistle, Oxeye Daisy, and Common Mullein were mapped in the South Section during the July assessment, with the overall area containing weeds increased from last year. While Bull Thistle occurrences have increased, the plants are in relatively low densities and were not in discrete populations.

Effective management of noxious weeds includes a combination of chemical, mechanical, biological, and/or cultural actions. Actions in 2023 included mechanical (hand-removal) of much of the Oxeye Daisy, Bull Thistle, and Common Mullein. Canada Thistle was showing signs of being infected with the rust fungus applied last year so the plants were not disturbed to continue to support the establishment of the fungus.

5.2.4 Hydrology

Conclusions for the South Section hydrology are provided in other reports prepared by SSPA.

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Appendix A
Detailed Methods

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Detailed Methods

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Detailed Methods

1.0 Quantitative Data Collection Transects

A total of 21 vegetation sampling transects have been established on the Property to assess changes in vegetation. The transects are shown on **Figures 3, 4, and 5** in the report and the details of each transect are provided in **Table A1**.

Table A1: Quantitative Vegetation Sampling Transects

Transect ID	Section of the Property	Year Established[1]	Start Point Coordinates (lat/long)	End Point Coordinates (lat/long)	Bearing[2]	Length (feet)	General Description
Wetlands							
2-1	North	2010	38.76182957 -106.08253450	38.76206509 -106.08284550	323	120	Near middle of site in Wetland 2; north of main channel; crosses dense stand of Willow
2-2	North	2010	38.76182957 -106.08253450	38.76166099 -106.08229260	140	50	Near middle of site in Wetland 2; immediately south of Transect 2-1; crosses main channel
2-3	North	2010	38.76215797 -106.08435410	38.76214515 -106.08424290	105	35	In northwest portion of site in Wetland 2
2-4	North	2010	38.76243692 -106.08280120	38.76254628 -106.08240650	79	115	In northeast portion of site in Wetland 2; crosses main channel
2-5	North	2021	38.76187659 -106.08373250	38.76189604 -106.08390610	286	50	Near middle of Wetland 2 on upper terrace
2-6	North	2021	38.76173497 -106.08379510	38.76171509 -106.08397020	271	50	Near middle of Wetland 2 on lower terrace
2-7	North	2021	38.76174578 -106.08323930	38.76175578 -106.08341940	283	50	Near middle of Wetland 2 on upper terrace
2-8	North	2021	38.76155560 -106.08327300	38.76154889 -106.08345050	276	50	Near middle of Wetland 2 in valley bottom near main channel
2-9	North	2021	38.76192357 -106.08289550	38.76183537 -106.08303730	240	50	Near middle of Wetland 2 on upper terrace
2-10	North	2021	38.76186247 -106.08263330	38.76177135 -106.08276350	237	50	Near middle of Wetland 2 on lower terrace
3	North	2010	38.76225180 -106.08239610	38.76224976 -106.08224290	100	45	Along eastern edge of site in Wetland 3
4	North	2010	38.76197611 -106.08212420	38.76208189 -106.08188080	70	75	Along eastern edge of site in Wetland 4
5	North	2010	38.76188274 -106.08180070	38.76189633 -106.08164620	92	45	Along eastern edge of site in Wetland 5
6	North	2010	38.76162020 -106.08191750	38.76143059 -106.08180980	165	80	Along southern edge of site in Wetland 6, which is associated with Arnold Gulch; crosses gulch
Uplands							
DoD	North	2023	38.76069639 -106.07868350	38.75990061 -106.07841040	173	300	Starts at same point as DoD wandering transect established in 2010
DoF	North	2023	38.76169338 -106.08142520	38.76212872 -106.08223330	292	300	Starts at same point as DoF wandering transect established in 2010; transect turns to a bearing of 334 degrees at the midpoint which is 38.76179265, -106.08193760
Gv	North	2023	38.76246813 -106.07723070	38.76168328 -106.07693930	172	300	Starts at same point as Gv wandering transect established in 2010

SsC	North	2023	38.76293668 -106.08235480	38.76247128 -106.08148640	133	300	Starts at same point as SsC wandering transect established in 2010
Gv2	North	2023	38.76210980 -106.07888710	38.76152135 -106.07815050	144	300	Situated on pipeline alignment
Gv3	South	2023	38.75847815 -106.07742800	38.75774297 -106.07695770	162	300	Situated just west of road, at edge of rockfall zone of Sugarloaf Mountain
DoD2	South	2023	38.75673426 -106.07723210	38.75598347 -106.07679960	164	300	Situated near edge of terrace above river

[1] No digital tabular vegetation data are available for the transects for 2010, 2015, or 2016, and no data were collected in 2020. As a result, data from those years have been omitted from the analysis in this report.

[2] *Bearing* is degrees from magnetic north.

2.0 Quantitative Data Collection

Methods for wetland vegetation data collected are restricted to the North Section since no quantitative data are being collected in the South Section. No data collection methods are included for hydrology since they are collected by others.

2.1 Wetland Vegetation

Based on past methodology, Dr. Jeremy Sueltenfuss, Mr. Andy Herb, and Dr. Jeremy Shaw measured the percent foliar cover of vegetative species on the 14 vegetation transects on July 24 and 25, 2023, using line-quadrat methodology as defined in the *Density Sampling Method* (Caratti 2006).

The collection of vegetation cover data along the transects involves placing a 1-foot square quadrat along alternating sides of the transects at 5-foot intervals (with the first quadrat placed at zero), then recording all species within the quadrat while visually estimating their foliar cover using six cover classes. The plant cover data recorded in the field for each quadrat were used to calculate the average percent cover of each species on each transect using the cover class midpoints (**Table A2**).

Table A2: Vegetation Cover Classes

Cover Class[1]	Range of Coverage (%)	Midpoint of Range (%)
1	0-5	2.5
2	6-25	15.0
3	26-50	37.5
4	51-75	62.5
5	76-95	85.0
6	96-100	97.5

[1] Adapted from BLM (1999)

All plants either rooted within or overhanging the quadrat were recorded. When a plant was overhanging but not rooted, it was noted that the coverage was specifically aerial. The transect start and endpoints were marked with wooden stakes and flagged.

The original transects were oriented perpendicular to the wetland boundary to monitor changes in the wetland boundary location. Four are in the high-quality wetland (Wetland 2), and one is in each of the low- (Wetlands 3, 4, and 5) and medium-quality wetlands (Wetland 6). Because these original transects extended well beyond the wetland boundaries, sometimes as much as 50 feet onto the upland terrace above the wetland, each transect was shortened to extend fewer than 20 feet beyond each wetland boundary. The six transects installed in 2021 are all within the boundaries of Wetland 2 and oriented parallel to the wetland boundary (perpendicular to the primary groundwater flow direction). This orientation was selected so that the hydrologic conditions would be as similar as possible along the length of each transect.

All plant nomenclature in this report and its appendices follows the *PLANTS Database* (USDA, NRCS 2023) unless otherwise noted.

2.2 Upland Vegetation

Dr. Jeremy Shaw and Mr. Andy Herb documented the conditions of soils, vegetation, and animal use to quantitively assess the ecological functioning of upland ecosystems on July 24, 2023. The methods for monitoring uplands were updated in 2023 to better assess the health and productivity of native plant communities, in accordance with the Bighorn Springs SWA Conservation Easement Management Plan (CPW 2022). The current monitoring approach consists of systematic sampling along 300-foot fixed transects that are stratified by upland soil types and monumented with rebar or fenceposts.

The areal cover of herbaceous vegetation (including woody plant seedlings less than 6 inches tall), litter, and bare soil was quantified using a modified Daubenmire method in 0.25 m^2 (0.5 m x 0.5 m) quadrats located every 15 feet along alternative sides of the transects (n = 21), while the cover of woody vegetation greater than 6 inches tall was estimated using the line-intercept method (BLM 1999). Absolute cover data were recorded as cover classes and converted to percent cover using the midpoint of each cover class (**Table A1**). Absolute cover was used instead of relative cover to quantify vegetation abundance because it is more closely related to biomass production and soil coverage. The total cover within a quadrat may have exceeded 100 percent since plant canopies may have overlapped. The presence of herbivory and signs of large and small animals (defined as scat, tracks, or burrows) were also recorded in each quadrat. Data for each transect were summarized as the mean absolute canopy cover of each species or surface type (litter or bare soil) and the relative frequency of categorical indicators in quadrats. The cover of woody plant species was calculated as the fraction of the transect length intercepted by the canopy of each species, and gaps in a canopy smaller than 0.5 foot were ignored.

Seven fixed transects were established within upland soil types of the North and South Sections during July 2023. In the North Section, four transects start at the monumented transect origins established in 2010 (DoD, Gv, SsC, and DoF) and follow the bearing of the existing photo points (**Table A1**). An additional transect on the Gv soil type (Gv2) was located within the pipeline corridor to monitor recovery from previous disturbance. The Gv3 and DoD2 transects were established within the soil types of the South Section (**Figure 5 in the report**).

Upland monitoring for the previous Grazing Management Plans used randomly located nested plots along wandering transects following the protocol of Butterfield et al. (2006). This method was used to monitor the DoD, DoF, Gv, and SsC transects from 2010 to 2019 by Colorado Mountain College (CMC 2019a), and since 2021 by AlpineEco (AlpineEco 2023a). While the current systematic sampling approach for fixed transects can produce more precise and repeatable data, the wandering transect approach used since 2010 was continued in 2023, and both data sets are presented in **Appendix B of the report.** When enough data have been collected to evaluate the relationship between monitoring approaches, the randomized sampling approach of Butterfield et al. (2006) may be discontinued.

Wandering transects are collocated with the fixed transects DoD, DoF, Gv, and SsC in the North Section (**Table A1 and Figure 3 in the report**). Wandering transects proceed from the monumented origin by throwing a dart over the shoulder in a random direction and recording the surface type (bare soil, litter, rock, plant base, or plant canopy) intercepted by the dart point. Soil conditions, animal activity, and the presence of annual vegetation were then recorded within a 12-inch diameter plot centered on the dart point. Soil conditions were identified as: capped from soil sealing; broken by disturbance; or covered by litter or vegetation. Animal activity was tallied as signs (scat, tracks, or presence) of insects, worms, small animals, and large animals. The distance from the dart point to the nearest perennial plant was measured and the species, growth form (e.g., grass, forb, shrub), age class (seedling, young, mature, decadent, or resprout), and grazing status (normal, over-grazed, over-browsed, over-rested, or dead) were identified. The process was then repeated until 50 randomly located nested plots were completed. Data for each transect were summarized as the relative frequency of categorical indicators and perennial plant species, and the mean distance to perennial plants (Butterfield et al. 2006).

3.0 Quantitative Data Analysis

3.1 Wetland Vegetation

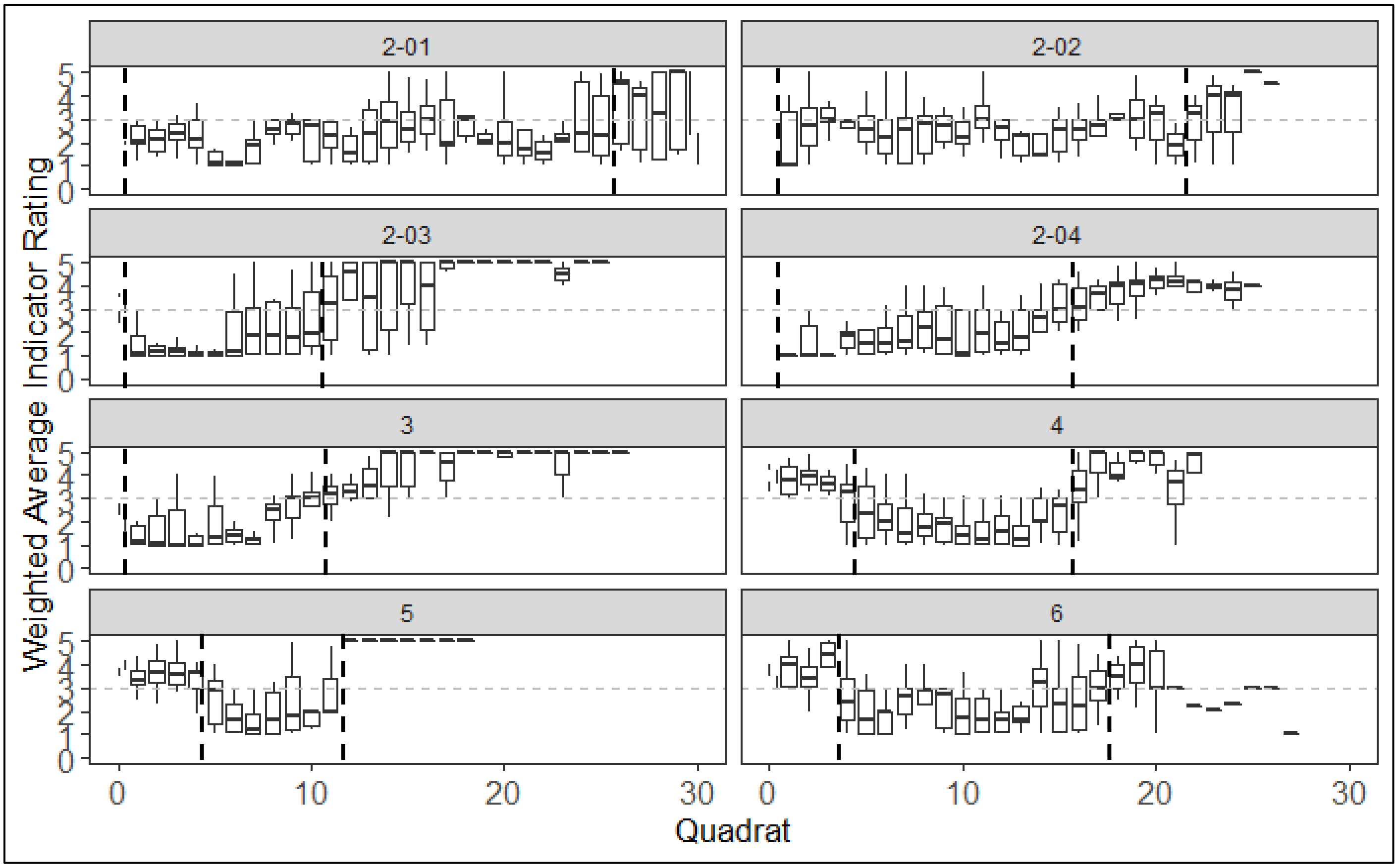
The goals of the wetland vegetation data analyses are to identify the baseline conditions at the site (new transects only), evaluate changes in vegetation, and identify any potential impairments at the site from current and past land management. The data analyses described here were only performed on vegetation data that were available in electronic tabular format, including 2011 to 2014, 2017 to 2019, 2021, 2022, and 2023. No data were available for years 2010, 2015, 2016, and 2020.

The original transects extended across both wetland and upland areas making it difficult to characterize the wetlands specifically. To avoid this, we isolated the wetland portion of each transect by using the plant species found within each quadrat to identify the wetland boundary and then analyzed data from just the wetland portion of each transect. Each plant occurring within a quadrat was assigned a wetland indicator status from the *National Wetland Plant List* (USACE 2020), ranging from 1 (obligate wetland) to 5 (upland).

- 1 - Obligate (OBL) – almost always occur in wetlands
- 2 - Facultative Wetland (FACW) – usually occur in wetlands, but may occur in non-wetlands
- 3 - Facultative (FAC) – occur in wetlands and non-wetlands
- 4 - Facultative Upland (FACU) – usually occur in non-wetlands, but may occur in wetlands
- 5 - Upland (UPL) – almost never occur in wetlands

The average Wetland Indicator Status for each quadrat was averaged over all monitoring years to identify the average wetland boundary for each transect. Quadrats with an average Wetland Indicator Rating of 3 or less (dominance of plant species rated FAC (3), FACW (2), or OBL (1)) were assumed to be wetland, while those with an average Wetland Indicator Status greater than 3 (dominated by FACU (4) or UPL (5) plants) were assumed upland. This process was used to identify the wetland boundary for each transect and allowed the isolation of only those quadrats within the wetland boundaries for further analysis (**Figure A1**).

Figure A1: Average Wetland Indicator Rating for Original Transects



Wetland vegetation has an average value of three or less; dashed lines represent wetland boundaries within each transect. Each quadrat is represented by a box indicating the variance in that quadrat's data across all sampling years, as well as its location along the transect along the x-axis. The bottom of the box is the lower 25th percentile of the data, the horizontal line within the box is the median for all years, and the top of the box is the upper 75th percentile of the data at that quadrat for all years.

The isolated wetland portions of each transect were evaluated for significant changes in the following metrics:

- Total vegetation cover
- Wetland vegetation cover — includes species rated as FAC, FACW, or OBL in the *National Wetland Plant List* (USACE 2020)
- Average wetland indicator status value of vegetation
- Native vegetation species cover
- Non-native vegetation species cover
- Species composition — The evaluation of species composition focused on significant changes in the cover of key plants or groups of plants that may indicate changing wetland conditions. These "indicator species" are listed in **Table A3** and include those that are important wetland plants (e.g. Sedges (*Carex* spp.) and Willows (*Salix* spp.)) or that have been directly observed to invade drying montane wetlands in central Colorado.

Table A3: Plant Species That May Indicate Changing Conditions

Scientific Name	Common Name	Wetland Indicator Status[1]	Conditions Indicated
Bassia scoparia	Burningbush	FAC	Problematic Vegetation - Weeds
Carex spp.	Sedge	FAC-OBL	Changing Hydrologic Condition
Cirsium arvense	Canada Thistle	FAC	Problematic Vegetation - Weeds
Equisetum laevigatum	Smooth Horsetail	FACW	Changing Hydrologic Condition
Salix spp.	Willow	FACW-OBL	Changing Hydrologic Condition
Urtica dioica	Stinging Nettle	FAC	Problematic Vegetation - Weeds

[1] Indicator status from the *National Wetland Plant List* (USACE 2020)

Significant changes in these metrics are defined as having *p*-values below 0.05, which equates to a 95 percent confidence interval. All analysis was performed within the R Statistical Package using linear regressions (R Core Team 2023).

- Conservation value (C-value) — The C-value, or "coefficient of conservatism," was analyzed for the plant communities in each transect. The C-value is a numeric score given to each plant species by a panel of botanical experts, and it represents the estimated probability that a plant is likely to occur in a landscape relatively unaltered from pre-European settlement conditions (CNHP 2012). Values range from 1 to 10, with higher values assigned to species that are obligates to high-quality habitats and cannot tolerate habitat degradation. Plants with lower values are assigned to species with a wide tolerance for human-related disturbances. Non-native plants have a score of zero. The mean C-value of a site provides an assessment of the ecological integrity of a site, with higher scores usually indicating higher functional condition.

3.2 Upland Vegetation

3.2.1 Fixed Transects

The fixed transect monitoring data were used to assess five metrics describing the health and productivity of native upland plant communities. Statistical analysis of the fixed transect data was not performed since 2023 was the first year of measurements. Instead, the fixed transect data were summarized to characterize ecological conditions along the transects, and all analyses were conducted using base functions in R 4.2.2 (R Core Team 2023). The results from both the systematic and randomized sampling approaches were compared and discussed, where appropriate.

Total Cover of Herbaceous and Woody Vegetation

Total vegetation cover was characterized using (a) the mean absolute cover of all herbaceous species in quadrats along each fixed transect, and (b) the absolute cover of all woody species intercepting the fixed transects. The randomly collected data from the protocol of Butterfield et al. (2006) was not used to evaluate total vegetation cover since it does not include the estimation of areal cover by species or the identification of annual species.

Cover of Native Herbaceous and Woody Vegetation

Native vegetation cover was characterized using (a) the mean absolute cover in quadrats along each fixed transect and (b) the absolute cover of all woody species intercepting the fixed transects, for species identified as native to the project area in the *PLANTS Database* (USDA, NRCS 2023). The randomly collected data from the protocol of Butterfield et al. (2006) was not used to evaluate native vegetation cover since it does not include the estimation of areal cover by species or the identification of annual species.

Cover of State-Listed Noxious Weeds
Noxious weed cover was characterized using (a) the mean absolute cover in quadrats along each fixed transect and (b) the absolute cover of all woody species intercepting the fixed transects, for species identified as noxious weeds by the State of Colorado (CDOA 2023). The randomly collected data from the protocol of Butterfield et al. (2006) was not used to evaluate noxious weed cover since it does not include the estimation of areal cover by species or the identification of annual species.

Soil Coverage by Litter
Soil coverage by litter was assessed by the mean absolute cover of litter in quadrats along each fixed transect. Additional insights were provided by the mean absolute cover of bare ground in quadrats. While methodological differences exist, the relative frequency of covered soil types in the 12-inch plots from the wandering transects (Butterfield et al. 2006) has been monitored since 2010 and were compared to litter cover data from the fixed transects.

Frequency of Large and Small Animal Use
The relative frequency of large and small animal signs in quadrats along each fixed transect were used to characterize animal use. While methodological differences exist, the relative frequency of large and small animal signs in the 12-inch plots from the wandering transects (Butterfield et al. 2006) has been monitored since 2010 and were compared to the relative frequency of animal use data from the fixed transects.

3.2.2 Wandering Transects

The wandering transect data was analyzed to maintain continuity of the long-term data set. These data were used to address the three objectives of the previous *Grazing Management Plan* (AlpineEco 2023a), which have been superseded with the establishment of the Bighorn Springs SWA. All data analyses were conducted using base functions in R 4.2.2 (R Core Team 2023) and the R package 'vegan' 2.6-4 (Oksanen et al. 2022).

Objective 1: Maintain and Enhance Productivity of Forage Species
Forage productivity was approximated by changes in the relative abundance of species identified as desirable forage for grazers and browsers in the *NRCS National Bulletin 190-22-5* (USDA 2021). Only data from the years 2010 and 2021-2023 could be analyzed because species information was not available for 2011-2019. Since neither canopy cover nor annual species data were recorded in the wandering transect protocol (Butterfield et al. 2006), abundance is characterized by the relative frequency of perennial forage species.

Objective 2: Increase Cover of Plants and Litter
Trends in soil coverage by plants and litter during 2010-2023 were analyzed for each wandering transect using the relative frequency of covered soil within the 12-inch diameter plots. Changes in the mean distance to nearest perennial plants, and the frequency of annual plants in the 12-inch diameter plots, were used to understand changes in vegetation cover. Beginning in 2023, soil cover by litter and vegetation was assessed using mean absolute cover values within quadrats along fixed transects (see above).

Objective 3: Increase Plant Diversity and Productivity

Changes in perennial species diversity were analyzed for wandering transects during 2010 and 2021-2023, when species composition data were available. Diversity was quantified using the Simpson Diversity Index (Mouillot and Lepretre 1999, Magurran 2004) based on the relative frequencies of perennial species recorded along each transect. The Simpson Diversity Index is a measure of evenness that ranges from 0 (monoculture) to 1 (uniform species abundance), regardless of the number of species present. This index was used over the more popular Shannon Diversity Index due to its greater interpretability and lower sensitivity to biases from varying sampling intensities (Mouillot and Lepretre 1999, Magurran 2004).

Changes in plant productivity from 2010 to 2023 were characterized using the mean distance to nearest perennial plants and the frequency of annual plants in the 12-inch diameter plots along the wandering transects. Beginning in 2023, plant productivity was characterized using mean absolute cover data for all species encountered along the fixed transects.

3.3 Hydrology

Hydrologic monitoring has been performed by contractors of BlueTriton Brands, currently S.S. Papadopulos and Associates, Inc. (SSPA). Hydrologic data collected from 2009 through 2023 include approximately monthly groundwater elevations from ten piezometers and mean daily discharge at two Parshall flumes on the outflow channel of BHS (**Figure 4 in the report**). The piezometers are 2-inch solid steel pipes with open bottoms completed at depths of 1.98 to 4.70 feet below the ground surface (**Table A4**). The Upper Flume (PF1) is located within the spring complex, while the Lower Flume (PF3) is near the confluence with the Arkansas River and thus quantifies surface water discharged from the site.

Table A4: BHS Wetland Piezometer Characteristics

Piezometer ID[1]	Total Length (ft)	Above Ground Length (ft)	Opening Depth Below Ground (ft)
1S	4.95	2.97	1.98
1D	6.95	2.45	4.50
2S	4.75	2.57	2.18
2D	8.00	3.33	4.67
3S	4.75	2.59	2.16
3D	7.85	3.15	4.70
4S	4.75	2.33	2.42
5S	4.75	2.44	2.31
6S	4.75	2.71	2.04
6D	8.05	3.40	4.65

[1] See Figure 4 in the report for piezometer locations.

Measurement errors in raw data were corrected prior to analysis as described in previous monitoring reports (AlpineEco 2023b). These artifacts were evident as several discrete and abrupt shifts in the raw discharge records for PF3 between May 13, 2010 and April 4, 2023, and were likely due to inconsistencies in pressure transducer position. They were corrected by applying the following adjustments: +0.15 cubic feet per second from May 13, 2010 to March 12, 2013; +0.05 from March 13, 2013 to June 12, 2013; +0.25 from June 13, 2013 to March 29, 2015; +0.15 from March 30, 2015 to April 3, 2023; and +0.20 on April 4, 2023. Other brief anomalies likely associated with maintenance activities were apparent in the discharge data but no corrections were applied.

Vertical hydraulic gradients (VHGs) between co-located piezometers of different depths quantify the direction and potential magnitude (mediated by hydraulic conductivity) of vertical groundwater flow. Positive VHGs indicate upward groundwater flow, while negative VHGs reflect downward flow under gravitational drainage. VHGs of zero occur when groundwater flow is primarily horizontal or nonexistent. VHGs were calculated for locations with paired shallow (e.g., 1S) and deep piezometers (e.g., 1D), which included Wetland 2 (1S/D and 2S/D), Wetland 3 (3S/D), and Wetland 6 (6S/D) (**Figure 4 in the report**). Pressure heads (water surface height above the piezometer opening) were calculated as the difference between the measured depth to water and piezometer total lengths, and VHGs were calculated as the difference in total head (pressure head + elevation head) divided by the elevation difference between openings (Fetter 2001). Since the piezometer elevations have not been surveyed, all calculations used depth below the ground surface at the piezometers.

Long-term changes in pressure heads, VHGs, and spring discharge were assessed using the Mann-Kendall test for monotonic trends (Mann 1945), and rates of change were estimated using the Theil-Sen slope coefficient (Sen 1968). These robust nonparametric methods quantify changes in median values over time and are widely used for hydrologic trend analysis because they do not require normally distributed data and are less biased by missing values than parametric approaches (Helsel et al. 2020). Analyses were performed for the full data set and for the growing season, as defined by the Natural Resources Conservation Service Agricultural Applied Climate Information System (http://agacis.rcc-acis.org/) using the nearby Buena Vista 2S station for 1991-2022. Based on a 50 percent probability of temperatures greater than or equal to 32˚F, the average growing season for the North Section is 115 days beginning on May 28 and ending on September 20. All analyses were performed in R (R Project 2022).

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1.0 Quantitative Data Results and Discussion

This section includes exhibits of data that are updated annually and support the summarized text in the report. Data for *Section 1.1 Wetland Vegetation* and *Section 1.3 Hydrology* are restricted to the North Section since no quantitative data are being collected in the South Section. Raw data are available upon request.

1.1 Wetland Vegetation

Table B1: Total Vegetation Cover in the North Section Wetland Area

Transect	Total Vegetation Cover (%)											
	2011	**2012**	**2013**	**2014**	**2017**	**2018**	**2019**	**2021**	**2022**	**2011-2022 Average**	**2023**	**Difference Between 2023 and the 2011 to 2022 Average**
2-01	45	70	73	75	64	55	56	69	43	61	51	-10
2-02	23	40	33	27	82	47	60	58	46	46	54	8
2-03	74	78	91	76	58	45	62	47	43	64	79	15
2-04	53	49	86	84	73	72	60	77	48	67	87	21
2-05	-	-	-	-	-	-	-	78	73	76	80	4
2-06	-	-	-	-	-	-	-	84	45	64	61	-3
2-07	-	-	-	-	-	-	-	70	77	73	74	0
2-08	-	-	-	-	-	-	-	86	71	79	95	16
2-09	-	-	-	-	-	-	-	75	80	78	81	4
2-10	-	-	-	-	-	-	-	83	55	69	89	20
3	49	28	97	97	85	54	65	61	66	67	80	13
4	57	72	59	80	59	51	64	56	42	60	81	21
5	85	43	54	63	58	47	40	51	46	54	85	31
6	56	48	82	82	60	48	48	103	35	62	60	-2
Sitewide Average	**55**	**53**	**72**	**73**	**67**	**52**	**57**	**71**	**55**	**62**	**76**	**14**

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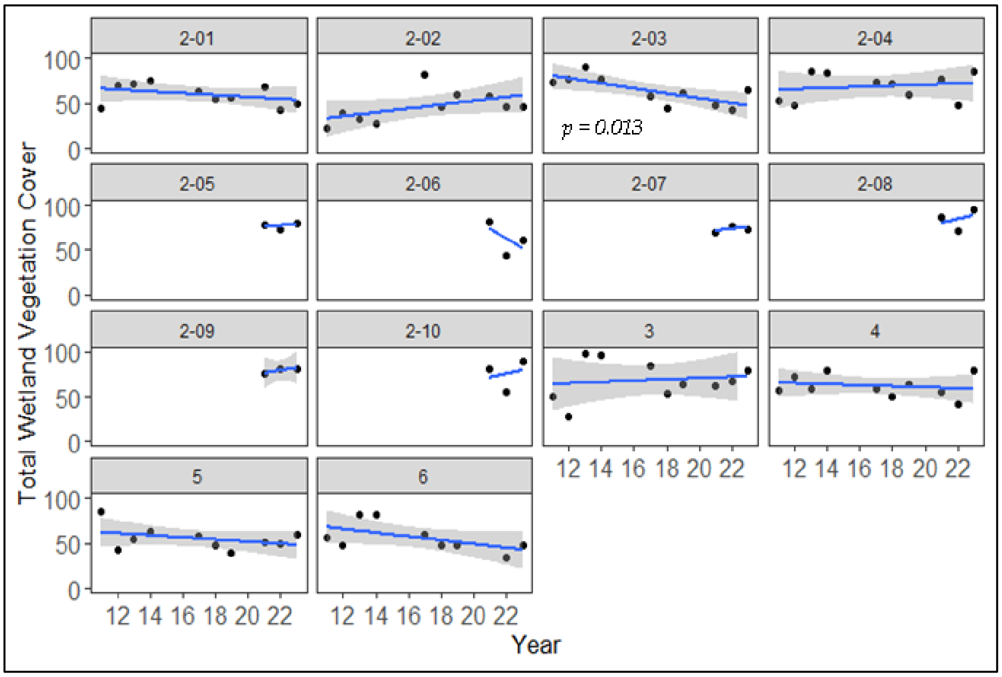

Figure B1: Total vegetation cover for wetland transects since 2010. Total vegetation cover has not significantly changed in 13 of the 14 transects. Total vegetation cover has significantly decreased through time for Transect 2-03, but cover along this transect increased in 2023 compared to the long-term trend.

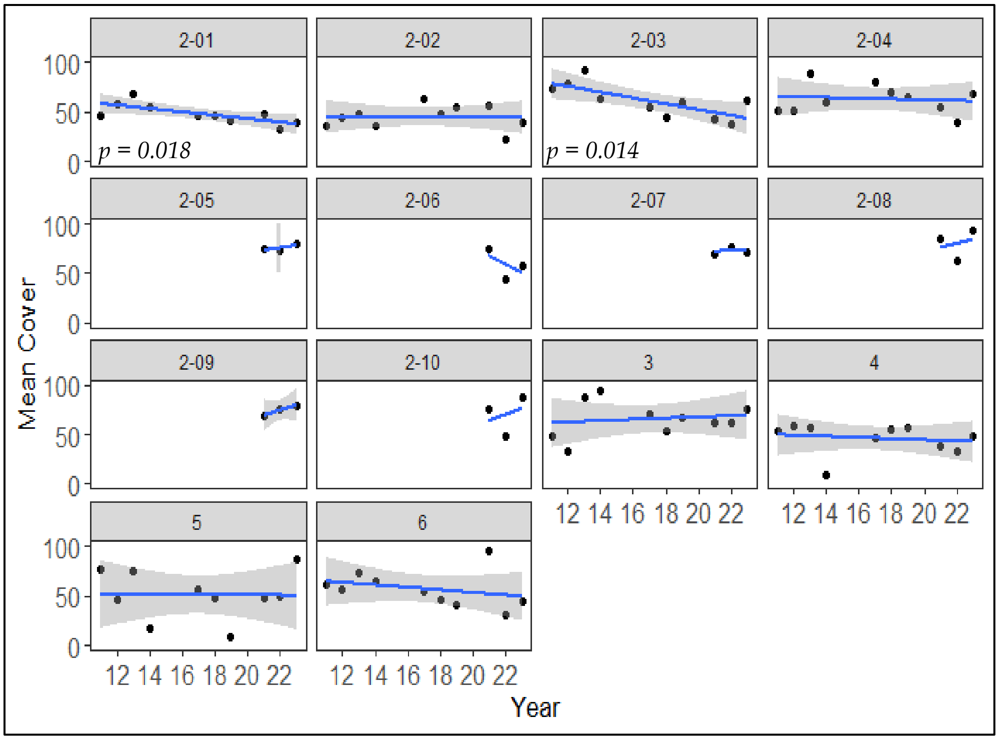

Figure B2: Native vegetation cover for wetland transects since 2010. Native cover has not significantly changed in 12 of the 14 transects, though has significantly decreased in Transects 2-01 and 2-03.

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Figure B3: Non-native vegetation cover for wetland transects since 2010. Non-native cover has not significantly changed in any transect through time.

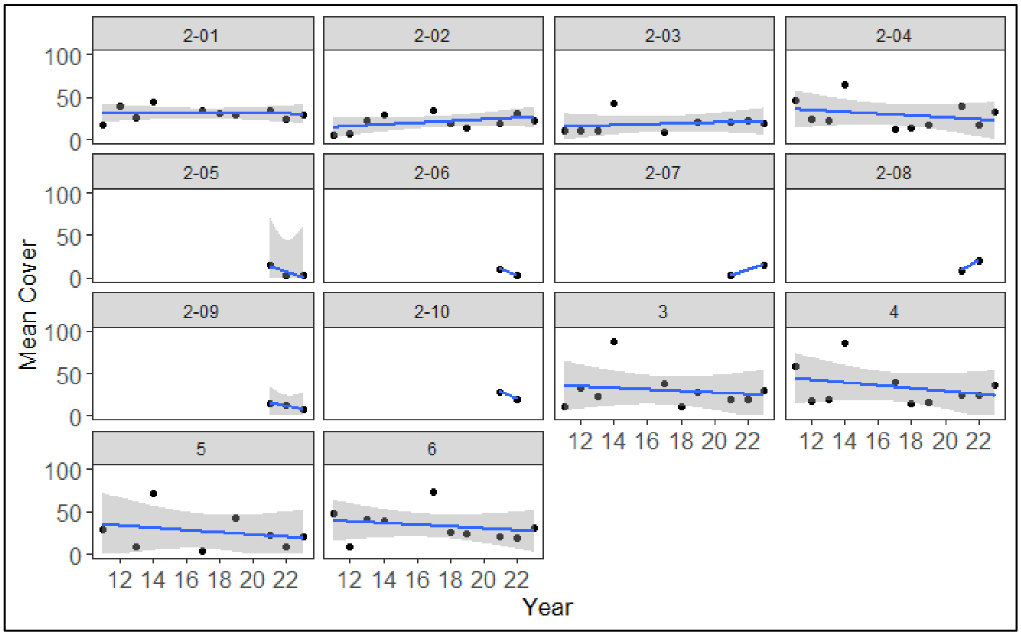

Figure B4: Average wetland indicator rating for plant communities for wetland transects since 2010. The average wetland indicator rating has not significantly changed for 11 of the 14 transects, though has significantly decreased (become wetter) for Transects 2-10 and 3, and significantly increased (become drier) for Transect 6.

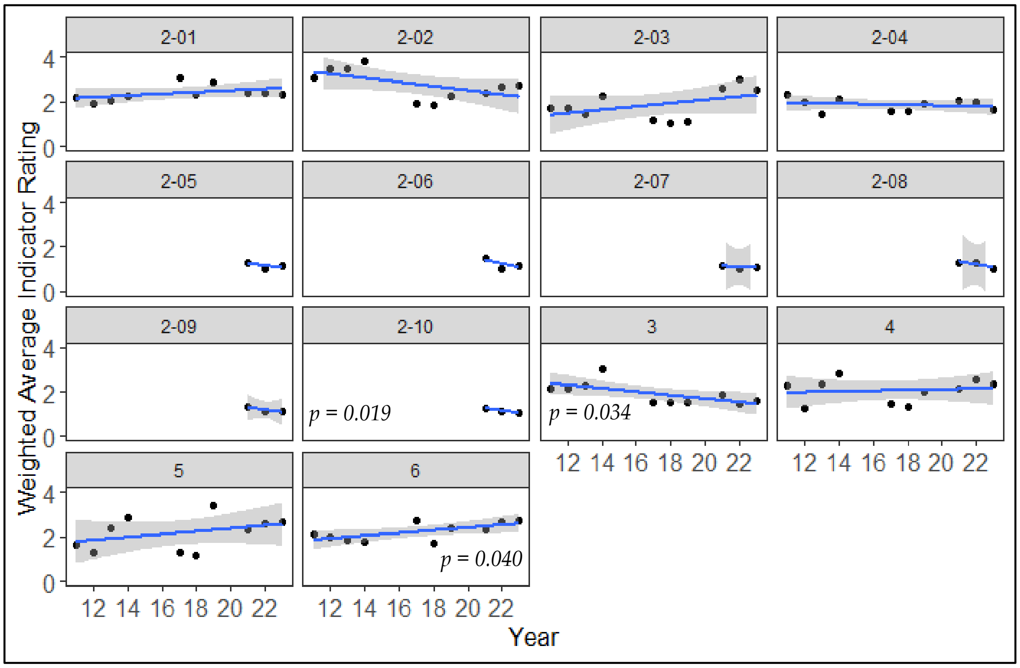

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Figure B5: Sedge cover for wetland transects since 2010. Sedges are the most common herbaceous wetland plant in these wetlands, and changes in their cover may indicate changing hydrologic conditions. There has not been a significant change in sedge cover for 11 of the 14 transects, though it has significantly declined for Transects 2-01, 2-03, and 6.

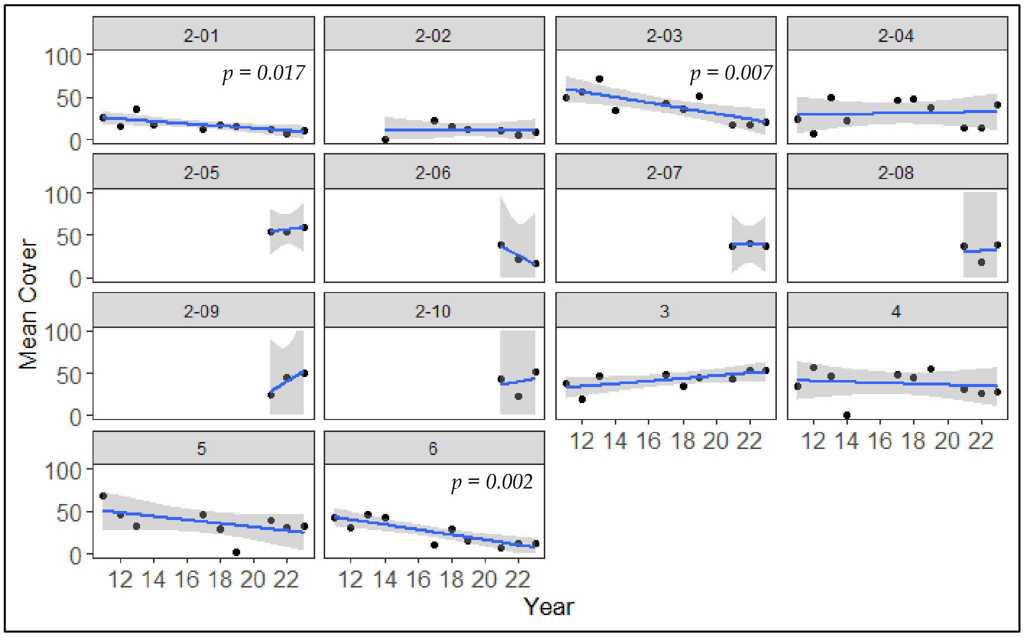

Figure B6: Willow cover for wetland transects since 2010. Willows are the most common woody plant in these wetlands, and changes in their cover may indicate changing hydrologic conditions. Only two transects have a willow overstory, and no significant change in willow cover has occurred in either transect.

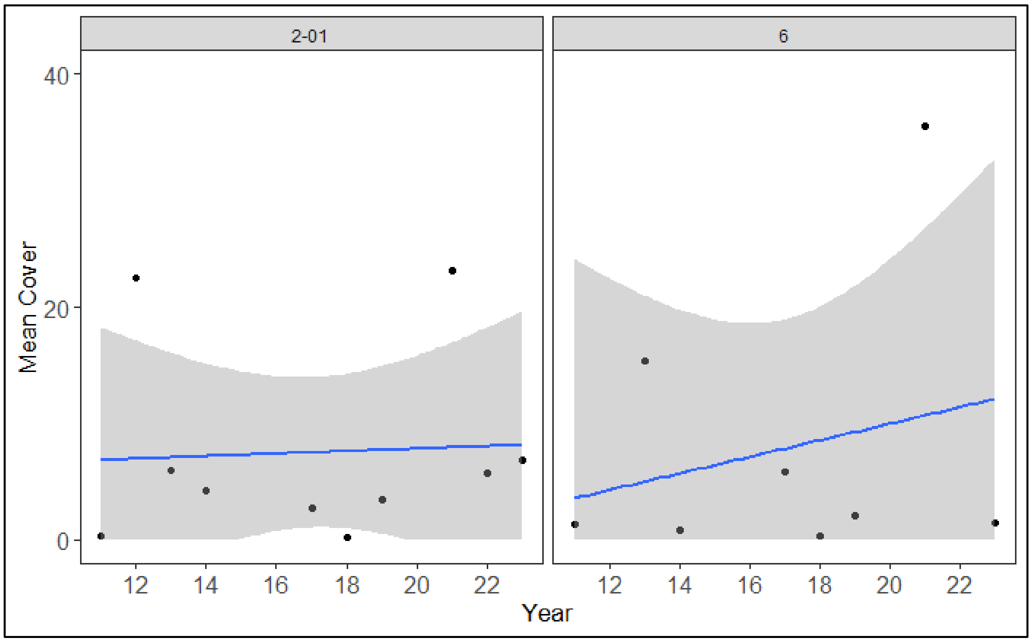

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Figure B7: Problematic indicator species cover for the wetland transects since 2010. An increase in these species may indicate changing hydrologic conditions. There has been a significant decrease in the cover of Smooth Horsetail, no significant change in Burningbush or Stinging Nettle, and a significant increase in Canada Thistle.

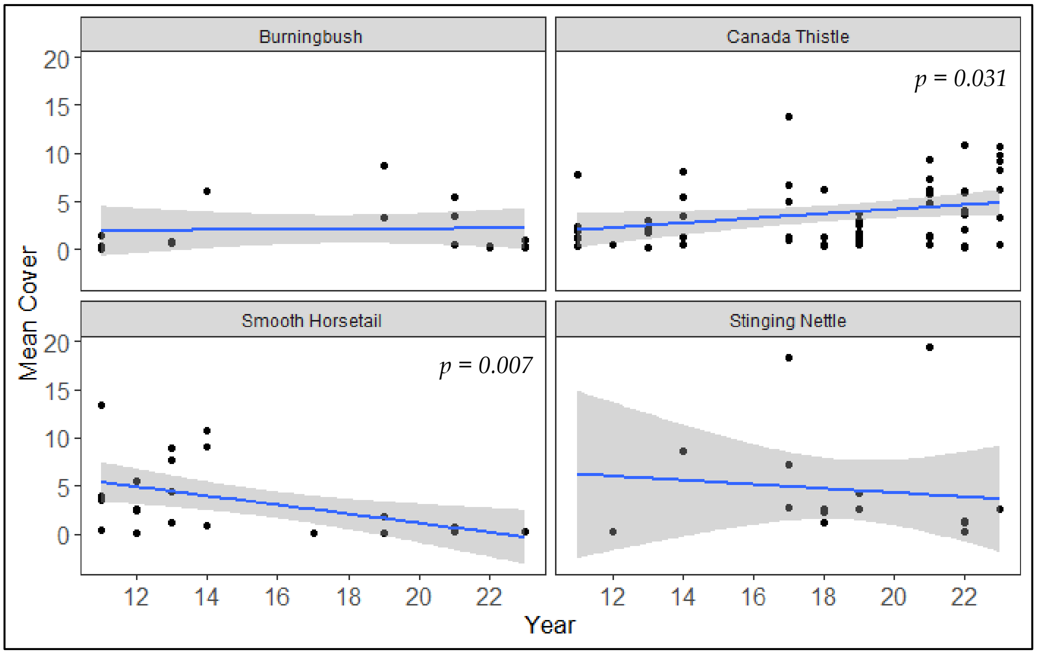
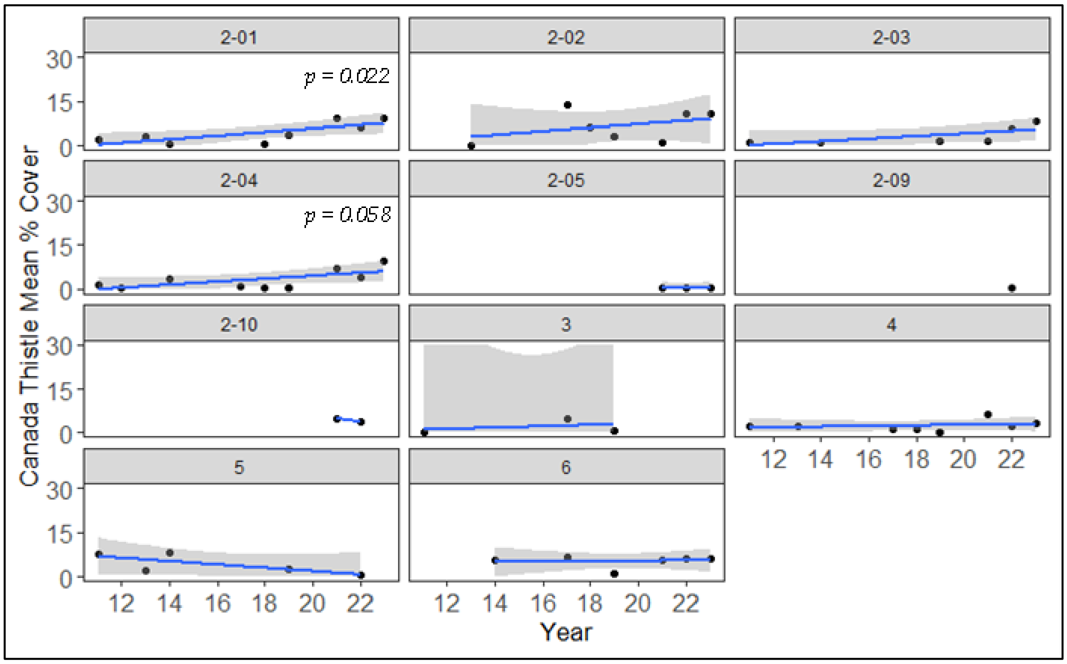


Figure B8: Canada Thistle cover for wetland transects since 2010. Canada Thistle has significantly increased along Transects 2-01 and 2-04. These populations have been mapped and are being treated.



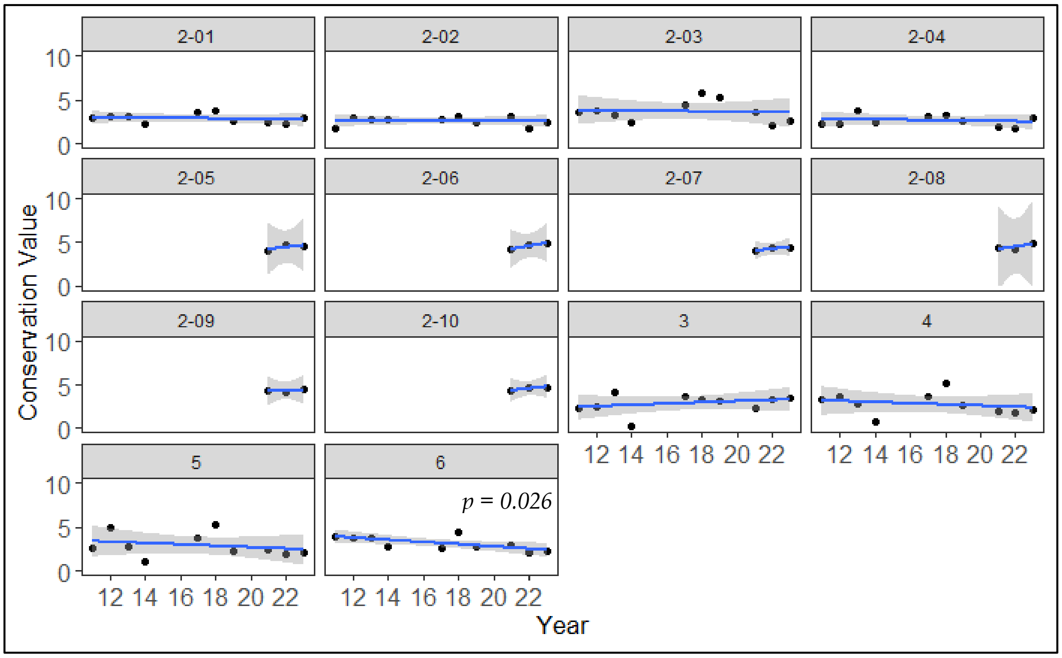


Figure B9: Conservation value for each wetland transect since 2010. Higher conservation values indicate higher quality plant communities. The conservation value of all transects indicates a degraded plant community in this area, but has not significantly changed. Of the 14 transects, only Transect 6 has significantly decreased.

1.2 Upland Vegetation

1.2.1 Fixed Transects

Monitoring data from the newly established fixed transects illustrates the diversity of upland ecosystem types in the North Section. Xeric soil types supported primarily perennial bunchgrasses and annual herbs with scattered shrubs and subshrubs. The DoD transect was dominated by Blue Grama (*Bouteloua gracilis*), which had a mean cover of 42 ± 3 percent (mean ± standard error), and lesser amounts of lichen (5 ± 1 percent) that could not be identified to species. Woody plants were uncommon in the DoD transect and consisted of Prairie Sagewort (*Artemisia frigida*; 4 percent) and Spreading Buckwheat (*Eriogonum effusum*; <1 percent). Herbaceous cover along the SsC transect was more evenly distributed among Blue Grama (16 ± 5 percent), Burningbush (*Bassia scoparia*; 14 ± 3 percent), and Sand Dropseed (*Sporobolus cryptandrus*; 10 ± 3 percent). The only woody plants encountered along the SsC transect were Spreading Buckwheat (1 percent). Vegetation along the Gv transect was almost exclusively composed of the non-native annual herb Burningbush (16 ± 3 percent), with occasional shrubs consisting of Rubber Rabbitbrush (*Ericameria nauseosa*; 3 percent) and Prairie Sagewort (<1 percent). Woody plants were absent from the Gv2 transect, located within the pipeline corridor on the Gv soil type, and herbaceous vegetation was composed mainly of Sand Dropseed (15 ± 3 percent), seedlings of Prairie Sagewort (7 ± 3 percent), Blue Grama (5 ± 2 percent), and Burningbush (5 ± 2 percent). Quadrats along the more mesic DoF transect were dominated by Field Bindweed (*Convolvulus arvensis*; 29 ± 4 percent), a List C noxious weed, and Burningbush (23 ± 4 percent), with lesser amounts of Kentucky Bluegrass (*Poa pratensis*) and Western Wheatgrass (*Pascopyrum smithii*). Woody plants were not encountered along the DoF transect.

Like the North Section, fixed transects in the South Section contained mainly native perennial bunchgrasses, but the abundance and diversity of woody plant species was higher. Herbaceous cover along the Gv3 transect was dominated by Blue Grama (37 ± 5 percent), while woody plant cover was provided by Winterfat (*Krascheninnikovia lanata*; 5 percent) and the prostrate cactus Plains Pricklypear (*Opuntia polyacantha*; <1 percent). The DoD2 transect was also dominated by Blue Grama (27 ± 4 percent) and an unidentified lichen (22 ± 3 percent), but the number and abundance of woody plant species was higher here than in any other upland transect. These included Plains Pricklypear (8 percent), Spreading Buckwheat (5 percent), Parry's Rabbitbrush (*Ericameria parryi*; 1 percent), and less than one percent cover from Prairie Sagewort, and Granite Prickly Phlox (*Linanthus pungens*).

Total Vegetation Cover

Total herbaceous cover varied considerably between monitoring transects in the North Section (**Table B2**). Herbaceous cover along the mesic DoF transect was the highest of all upland transects at 109 ± 6 percent, while cover was lowest along the Gv transect (18 ± 3 percent). Mean herbaceous cover in the remaining North Section transects ranged from 38 ± 3 percent to 50 ± 4 percent. Mean herbaceous cover in the South Section monitoring transects from 45 ± 5 percent (Gv3) to 75 ± 5 percent (DoD2).

Table B2: Mean Cover of Herbaceous Species in 2023

Section	Transect	Total (%)	Native (%)	List B Weeds (%)	List C Weeds (%)
North	DoD	50	50	0	0
North	DoF	109	26	8	40
North	Gv	18	<1	0	0
North	Gv2	38	31	0	0
North	SsC	50	32	0	0
South	DoD2	75	75	0	0
South	Gv3	45	44	0	0

[1] Vegetation cover may exceed 100 percent if multiple strata are present (i.e. relative cover).

Woody vegetation cover was sparse along transects within the North Section (**Table B3**). No woody plant cover ranged from 1 to 4 percent where present, but none were encountered along the DoF or Gv2 transects. Woody plant cover was higher in transects of the South Section, and ranged from 5 percent along the Gv3 transect to 15 percent along the DoD2 transect.

Table B3: Mean Cover of Woody Species in 2023

Section	Transect	Total (%)	Native (%)	List B Weeds (%)	List C Weeds (%)
North	DoD	4	4	0	0
North	DoF	0	0	0	0
North	Gv	3	3	0	0
North	Gv2	0	0	0	0
North	SsC	1	1	0	0
South	DoD2	15	15	0	0
South	Gv3	5	5	0	0

Native Vegetation Cover

Native herbaceous cover was highly variable in the North Section and was lowest in the Gv and DoF transects (**Table B2**). Native species were largely absent (<1 percent cover) from the Gv transect, where few species other than the non-native Burningbush occurred. The DoF transect was also dominated by non-native and State listed noxious weed species, and native herbaceous cover averaged 26 ± 6 percent or about 23 percent of total herbaceous cover. The most abundant native species here were Western Wheatgrass (8 ± 3 percent) and Alkali Sacaton (*Sporobolus airoides*; 7 ± 5 percent). Native herbaceous cover ranged from 31 ± 0 to 50 ± 4 percent in the remaining North Section transects, where Blue Grama and Sand Dropseed prevailed. Blue Grama and other native species comprised nearly 100 percent of total herbaceous cover in the South Section monitoring transects. No non-native woody species were encountered in the upland transects (**Table B2**).

Noxious Weed Cover

Much of the total herbaceous vegetation cover along the DoF transect was comprised of four State listed noxious weeds (**Table B2**). Canada Thistle (*Cirsium arvense*) was the only List B species present, with an average cover of 8 ± 2 percent. Three List C species consisting of Field Bindweed, Cheatgrass (*Bromus tectorum*), and Quackgrass (*Elymus repens*) averaged 40 ± 6 percent cover. No State listed noxious weeds were encountered along the other upland transects, which are on more xeric soil types.

Litter Cover

Litter was widespread and provided soil coverage along all monitoring transects (**Table B4**). Average litter cover in the North Section ranged from 20 ± 4 percent along the Gv2 transect to 44 ± 4 percent along the DoF transect. The low rate of litter accumulation along the Gv2 transect corresponds to the highest amount of bare soil among all transects (57 ± 5 percent), and is likely a results of slow recovery from the pipeline installation in 2009. While litter cover was high in the less disturbed Gv transect (41 ± 6 percent) bare soil was also extensive (45 ± 6 percent) and is reflective of the coarse and well-drained soil type. Litter cover ranged from 28 ± 2 to 44 ± 4 percent in other North Section transects.

Table B4: Mean Cover of Litter and Bare Soil in 2023

Section	Transect	Litter (%)	Bare Soil (%)
North	DoD	28	23
North	DoF	44	24
North	Gv	41	45
North	Gv2	20	57
North	SsC	38	25
South	DoD2	32	34
South	Gv3	46	29

Litter cover in the South Section ranged from 32 ± 3 percent along the DoD2 transect to 46 ± 3 percent along the Gv3 transect. It is notable that bare soil was relatively uncommon in the Gv3 transect (29 ± 3 percent) and much lower than corresponding Gv transects in North Section, suggesting that uplands of the South Section have been less disturbed.

Animal Use

Evidence of animal activity was common along all monitoring transects (**Table B5**). While large animal signs were not detected in the DoF transect, scat and tracks from bighorn sheep and/or mule deer were present in 24 to 67 percent of quadrats along the other transects in the North Section. Small animal signs were most frequent along the DoF transect (71 percent) and consisted primarily of pocket gopher burrows. The relative frequency of rabbit scat and other small mammal burrows ranged from 10 to 19 percent more xeric soil types.

The frequency of large animal signs (bighorn sheep and mule deer) in upland transects of the South Section ranged from 48 to 29 percent. Small animal signs (rabbit scat and mammal burrows) ranged from 38 to 29 percent. Signs of herbivory were observed only in the Gv3 transect, in 5 percent of quadrats.

Table B5: Frequency of Animal Use in 2023

Section	Transect	Large Animal Signs (%)		Small Animal Signs (%)		Herbivory (%)
		Fixed	Wandering	Fixed	Wandering	
North	DoD	67	34	29	2	0
North	DoF	0	16	71	53	0
North	Gv	38	56	10	28	0
North	Gv2	62	-	24	-	0
North	SsC	24	36	24	38	0
South	DoD2	48	-	38	-	0
South	Gv3	29	-	29	-	5

1.2.2 Wandering Transects

Vegetation composition documented along the upland wandering transects within the North Section (Transects DoD, DoF, Gv, and SsC) suggests continued recovery of grassland ecosystems since the 2022 monitoring period. The relative frequency of perennial grasses has increased, now ranging from 86 to 100 percent, of which 84 to 100 percent are warm-season species. Blue Grama is now the dominant species on xeric soils, with relative frequencies of 100 percent in the DoD transect, 70 percent in the Gv transect, and 54 percent in the SsC transect. The latter two transects also contain Western Wheatgrass, Sand Dropseed, Scarlet Globemallow (*Sphaeralcea coccinea*), and Spreading Buckwheat. Notably, the perennial Green Needlegrass (*Nassella viridula*) was observed for the first time along the SsC transect in 2023. Vegetation on mesic soils of the DoF transect (Mountain Meadow) is more diverse, containing abundant Field Bindweed, Nebraska Sedge (*Carex nebrascensis*), Arctic Rush (*Juncus arcticus* ssp. *littoralis*), Kentucky Bluegrass, and Quackgrass, with lesser amounts of other graminoids and herbs. Field Bindweed is the most frequently encountered perennial along this transect, and its relative frequency has increased since 2022 from 33 to 36 percent. Perennial plant growth forms are also more diverse in the DoF transect and are becoming increasingly dominated by grasses (43 percent) and herbs (39 percent), while sedges are declining (18 percent). Eighty-six percent of the perennial graminoids along the DoF transect were cool-season species.

Vegetation composition derived from the relative frequency of perennial species in the wandering transects was broadly consistent with the fixed transect data in the North Section. Both data sets agreed that Blue Grama was the dominant perennial species along the DoD and SsC transects but showed minor differences in the number and abundance of less common perennial species. Perennial species composition was similar for each sampling method on the DoF transect, where Field Bindweed was most abundant, but prevalence of non-native and noxious weeds in this transect was not revealed by the protocol of Butterfield et al. (2006). The most striking difference between sampling approaches occurred in the Gv transect, where Blue Grama dominated the wandering transect but was absent from the fixed transect.

Appendix B

Additional Quantitative Data

Animal use data from the wandering transects was not strongly related to that from the fixed transects, but there was agreement that large animal signs were least frequent, and small animal signs were most frequent, along the DoF transect (**Table B5**). The frequency of large animal signs decreased and small animal signs increased dramatically along this transect since 2022.

Data and discussion specific to the three objectives of the previous *Grazing Management Plan* (AlpineEco 2023a) are provided in the following sections and the updated data tables for each of the transects follow.

Objective 1: Maintain and Enhance Productivity of Forage Species
Table B6 shows the perennial species encountered along each wandering transect and their forage status according to *NRCS National Bulletin 190-22-5* (USDA 2021).

Appendix B

Additional Quantitative Data

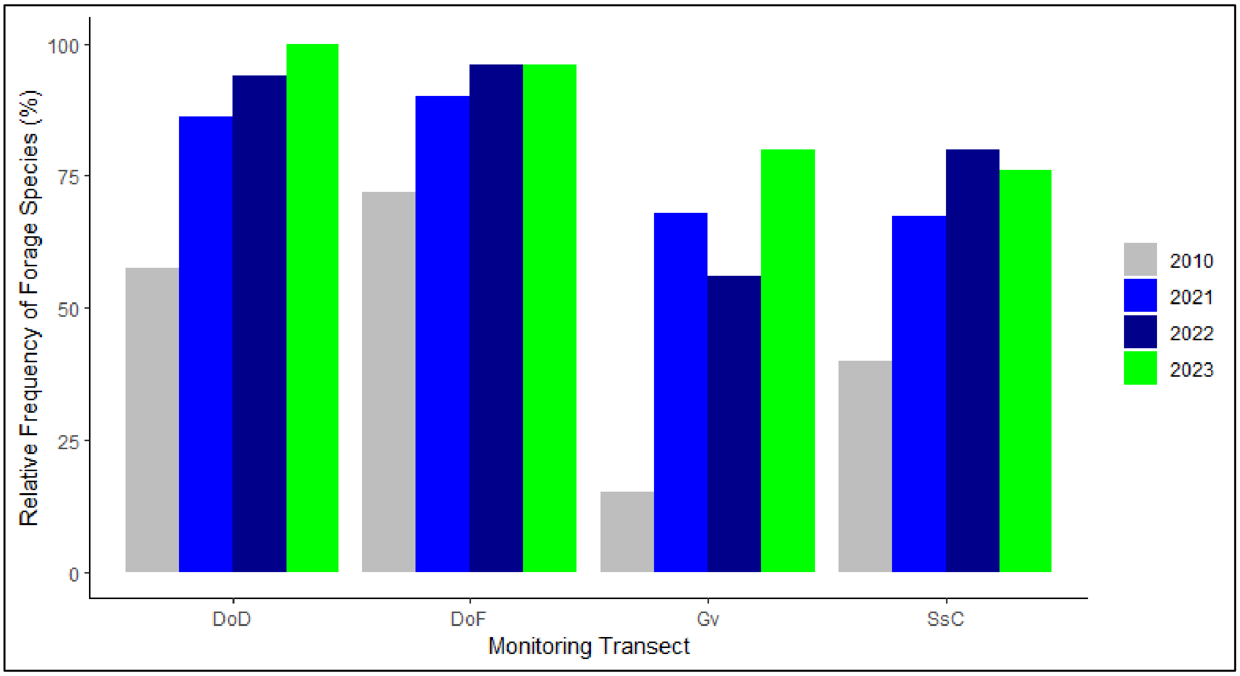
Table B6: Perennial Species and Forage Status Recorded in Wandering Transects in 2023

Scientific Name	Common Name	Forage for Browsers[1]	Forage for Grazers[1]	Present in Transect			
				DoD	Gv	SsC	DoF
Alkali Sacaton	*Sporobolus airoides*		✓				✓
Arctic Rush	*Juncus arcticus* ssp. *littoralis*		✓				✓
Blue Grama	*Bouteloua gracilis*		✓	✓	✓	✓	
Field Bindweed	*Convolvulus arvensis*	✓	✓				✓
Foxtail Barley	*Hordeum jubatum*						✓
Green Needlegrass	*Nassella viridula*	✓				✓	
Kentucky Bluegrass	*Poa pratensis*	✓	✓				✓
Nebraska Sedge	*Carex nebrascensis*		✓				✓
Prairie Sagewort	*Artemisia frigida*				✓		
Quackgrass	*Elymus repens*		✓				✓
Rubber Rabbitbrush	*Ericameria nauseosa*				✓		
Sand Dropseed	*Sporobolus cryptandrus*				✓	✓	
Scarlet Globemallow	*Sphaeralcea coccinea*					✓	
Sleepygrass	*Achnatherum robustum*					✓	
Smooth Horsetail	*Equisetum laevigatum*						✓
Spreading Buckwheat	*Eriogonum effusum*	✓			✓	✓	
Stinging Nettle	*Urtica dioica*						✓
Western Wheatgrass	*Pascopyrum smithii*	✓	✓			✓	

[1] Forage status defined in *NRCS National Bulletin 190-22-5* (USDA 2021).

The relative frequency of perennial forage species changed little along most of the wandering transects since 2022 but did increase from 56 to 80 percent along the Gv Transect (**Figure B10**). Perennial forage species abundance remains significantly higher than in 2010 for all monitoring transects. Forage species in the DoF transect consists mainly of Field Bindweed, Nebraska Sedge, Kentucky Bluegrass, and Quackgrass. In more xeric areas, perennial forage is dominated by Blue Grama with lesser amounts of Spreading Buckwheat and Western Wheatgrass.

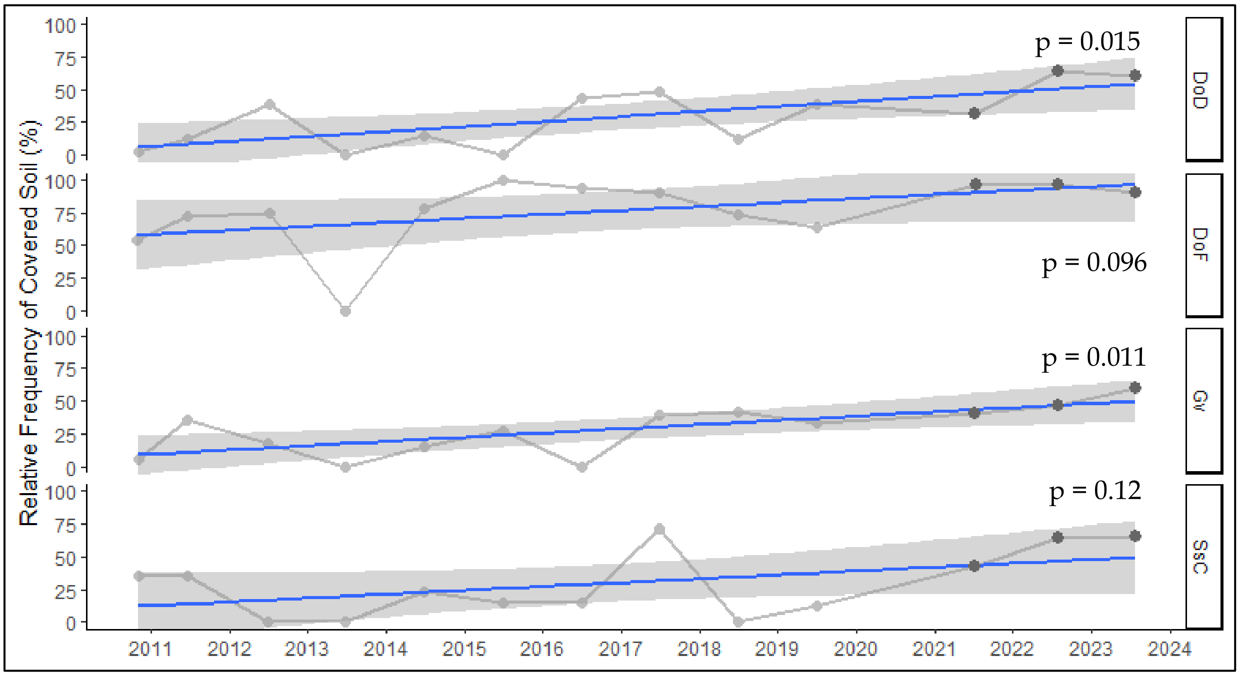
Figure B10: Changes in the Relative Frequency of Desirable Forage Species



Objective 2: Increase Cover of Plants and Litter

The relative frequency of soil coverage by plants and litter in the 12-inch plots showed minor variations since 2022 in the North Section (**Figure B11**). Soil coverage has improved since 2010, and statistically significant increases occurred along the DoD transect (p = 0.015) and Gv transect (p = 0.011). High interannual variability resulted in non-statistically significant trends along the DoF transect (p = 0.096) and the SsC transect (p = 0.12).

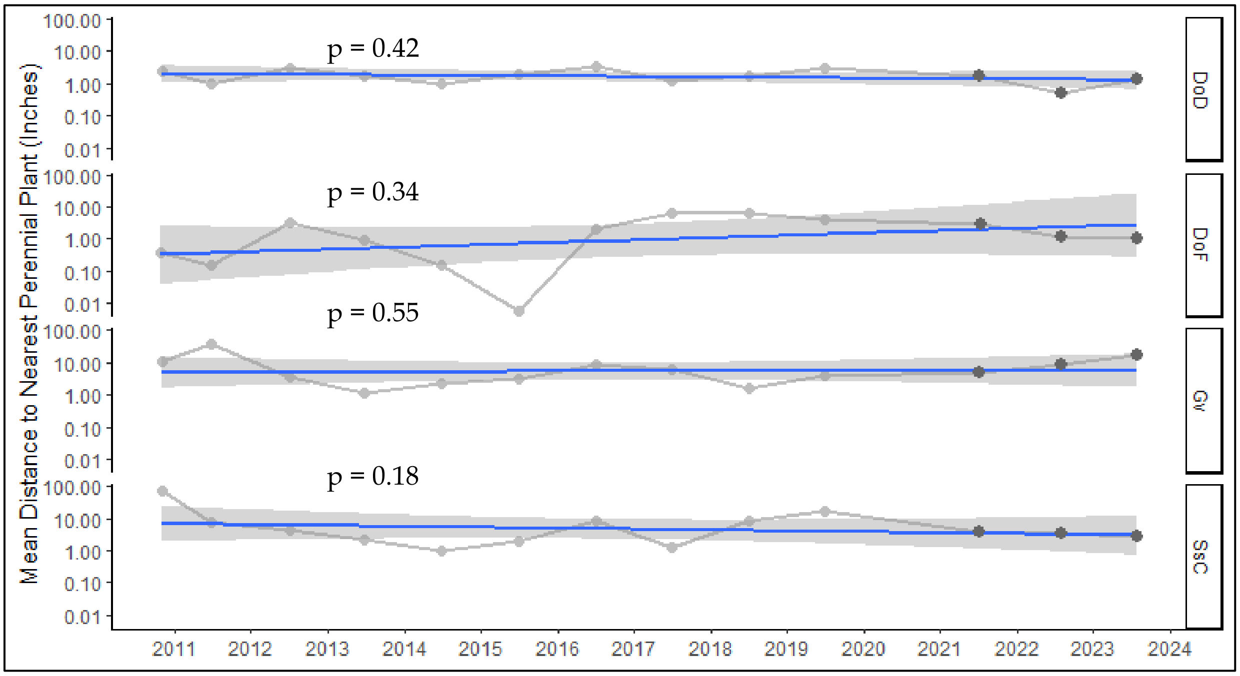
Figure B11: Changes in the Relative Frequency of Covered Soil



Dark blue lines are the fitted regressions and the gray ribbons are the 95 percent confidence intervals. Dark grey points show data collected by AlpineEco.

The average distance to the nearest perennial plant represents perennial plant density along the wandering transects. Since the last monitoring period in 2022, average distances decreased along the DoF (-0.1 inches) and SsC (-0.6 inches) transects (reflecting increased plant density), while it increased along the DoD (+0.9 inches) and Gc (+8.3 inches) transects (**Figure B12**). These interannual fluctuations appear to be consistent with the observed long-term variability, and no significant trends ($p \geq 0.18$) have occurred since 2010. The perennial plants observed along the DoD and Gv transects were roughly equally divided between young and mature size classes, while the frequency of mature perennial plants has increased to 78 percent along the DoF transect and 80 percent along the SsC transect, suggesting that recovery from past overgrazing is ongoing.

Figure B12: Changes in the Mean Distance to the Nearest Perennial Plant



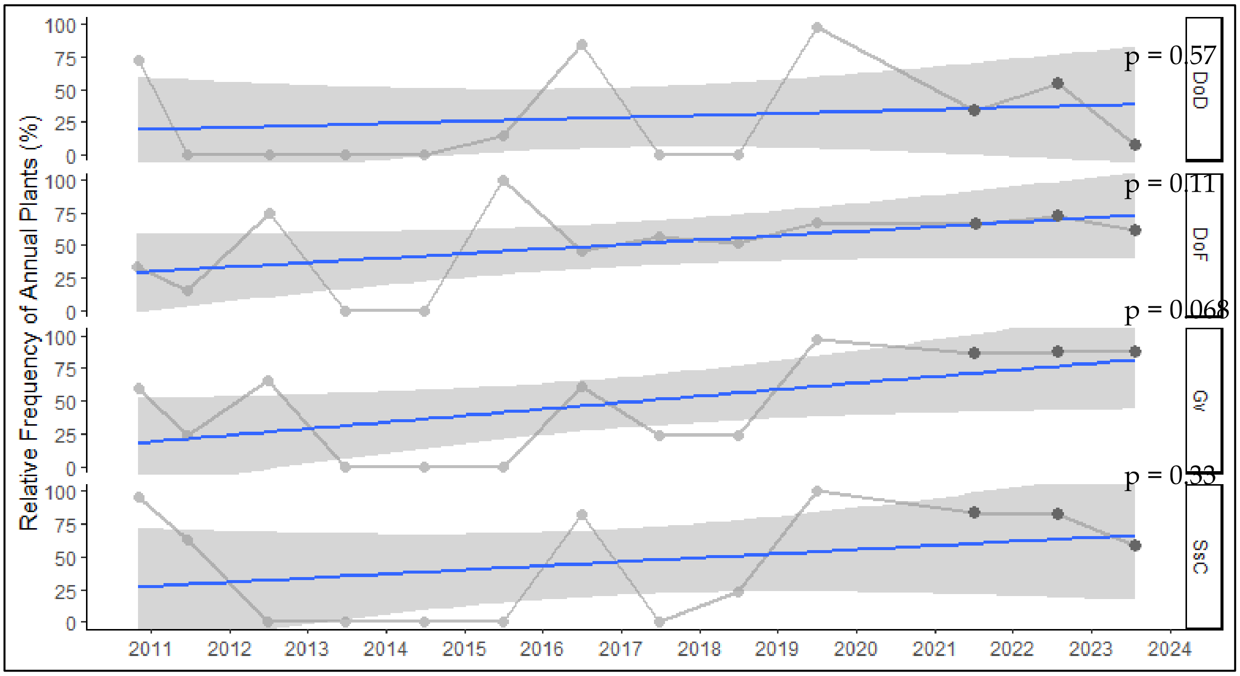
Dark blue lines are the fitted regressions and the gray ribbons are the 95 percent confidence intervals. Dark grey points show data collected by AlpineEco. Note that the y-axis scale is logarithmic.

The relative frequency of annual plants within the 12-inch diameter plots has varied considerably between years and declined in three of the four wandering transects since 2022 (**Figure B13**). Although slight increases are apparent in the fitted regression lines for each transect since 2010, the changes are not statistically significant for the DoD, DoF, or SsC transects ($p \geq 0.11$) due to the high interannual variability reflected in the wide confidence intervals. The Gv transect has the highest annual plant frequency and the clearest increases since 2010 ($p = 0.068$).

Appendix B

Additional Quantitative Data

Figure B13: Changes in the Relative Frequency of Annual Plants

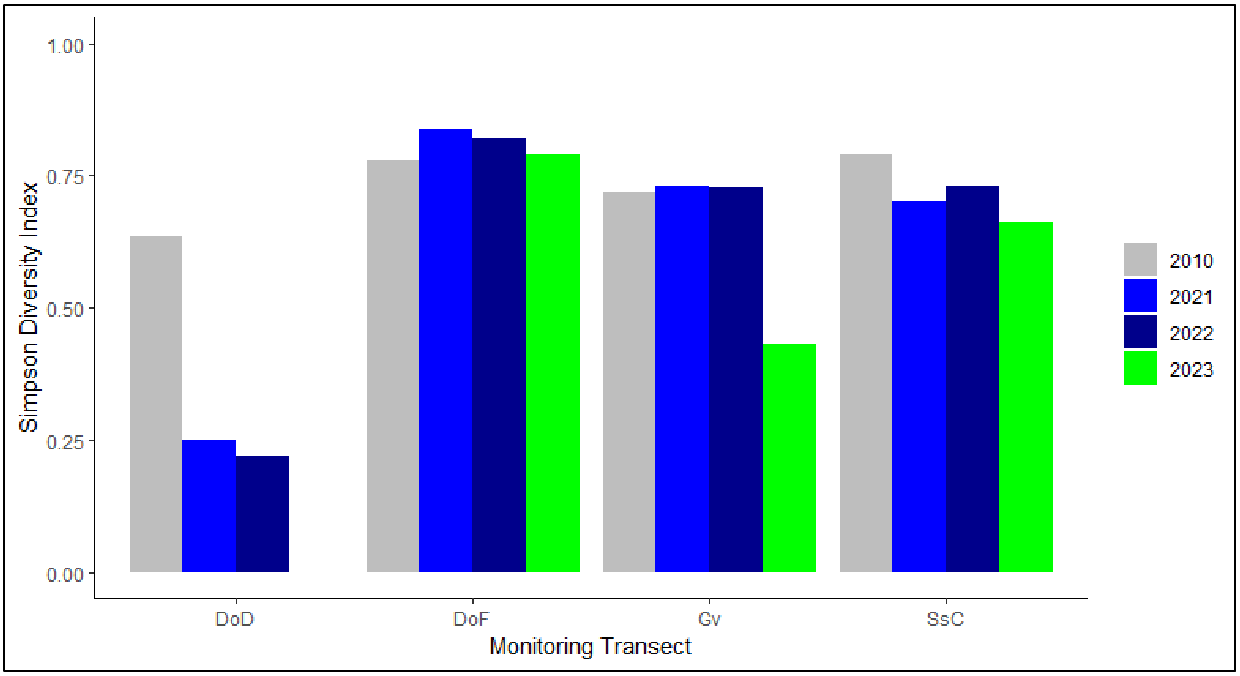


Dark blue lines are the fitted regressions and the gray ribbons are the 95 percent confidence intervals. Dark grey points show data collected by AlpineEco.

Objective 3: Increase Plant Diversity and Productivity

Eighteen perennial plant species were encountered along the North Section wandering transects during 2023, compared to 17 species in 2022 and 19 species (including five unknowns) in 2010. The Simpson Diversity Index for the entire North Section, based on perennial species relative frequencies across all transects, decreased from 0.79 in 2022 to 0.65. This change was due to substantial decreases along the DoD and Gv transects (**Figure B14**). Simpson Diversity declined along the DoD transect from 0.22 in 2022 to 0 in 2023, since Blue Grama was the only perennial species encountered along the wandering transect. While this result is indicative of a monoculture, it is partly an effect of randomized sampling that emphasizes the most common species. Data from the fixed DoD transect agreed that Blue Grama was the overwhelming dominant, but Spreading Buckwheat, Sand Dropseed, and lichen were also detected. Diversity along the Gv transect declined from 0.73 in 2022 to 0.43 in 2023, reflecting an increase in Blue Grama frequency along this transect since 2022. Changes were negligible along the DoF and SsC transects since the 2022 monitoring period.

Figure B14: Changes in the Simpson Diversity Index for Perennial Species



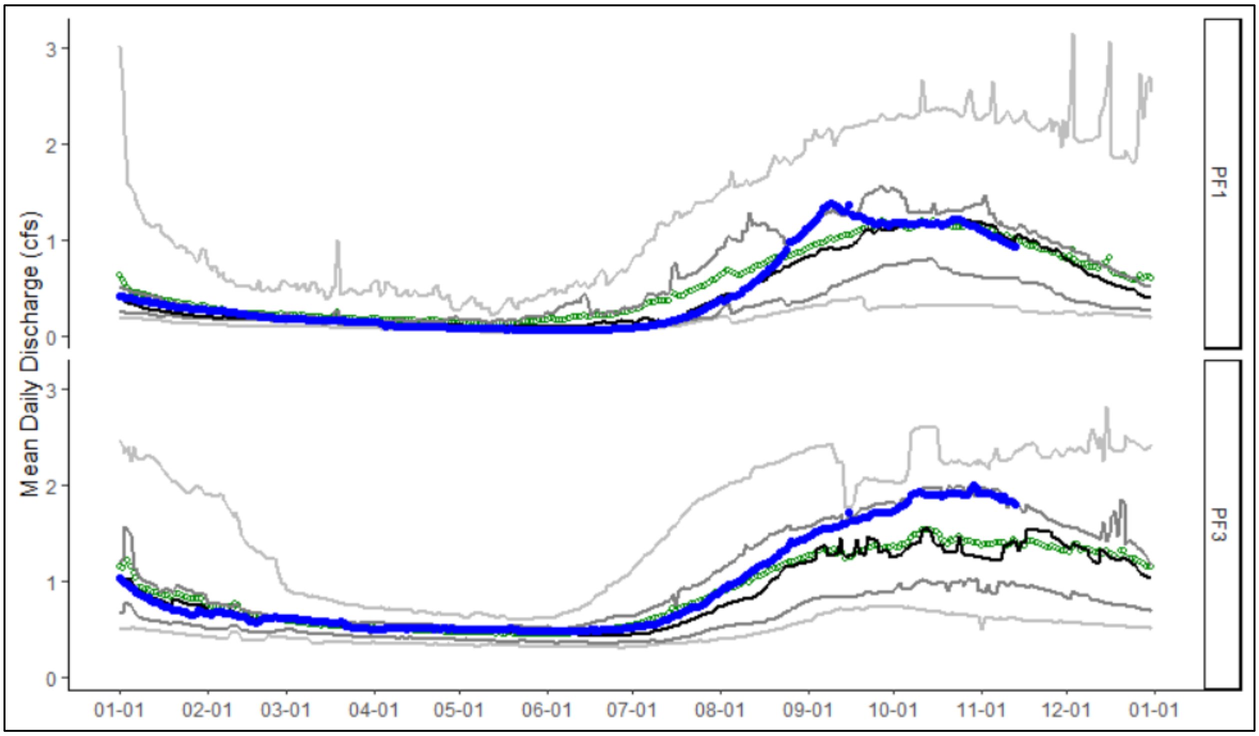
The mean density of perennial species and the relative frequency of annual species along the wandering transects (see Objective 2) indicate that substantial changes to total plant productivity have not occurred since 2010 in uplands of the North Section.

1.3 Hydrology

1.3.1 Spring Discharge

Discharge from the upper BHS complex at PF1 was similar to the long-term median throughout the 2023 growing season (May 28 to September 20) and through of period of record ending on November 13 (**Figure B15**). Discharge at PF3 near the confluence with the Arkansas River showed a similar pattern but increased during the summer to reach the 75th percentile of all observations since 2009. SSPA staff noted suspected sensor drift that could inflate discharge measurements at PF3 during the 3rd quarter of 2023, and plan to recalibrate the sensor in early 2024.

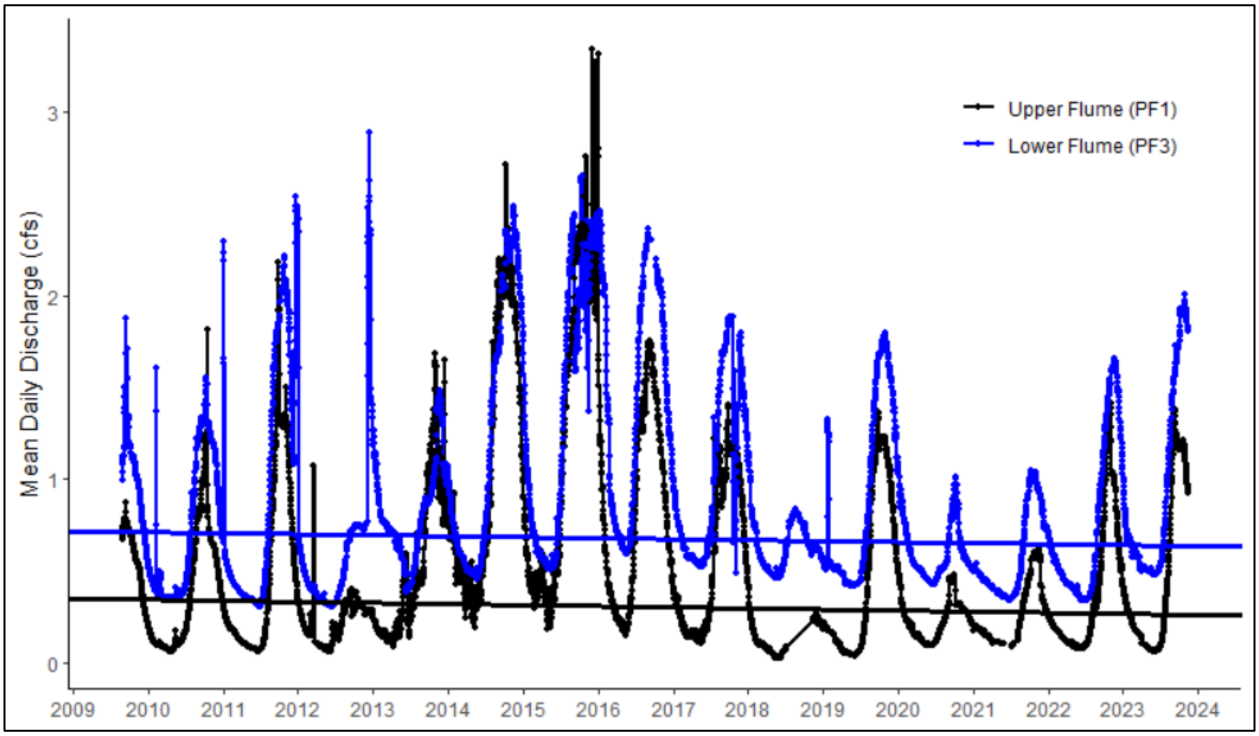
Figure B15: BHS Spring Discharge During 2023



Note: Blue lines are 2023 data. Green circles are 2009-2023 averages, while light grey lines are 1st and 99th percentiles, dark gray lines are 25th and 75th percentiles, and black lines are medians.

Seasonal patterns of spring discharge since 2009 suggest that the hydrologic regime of the BHS wetland complex is profoundly influenced by subsurface recharge from excess irrigation applied on upgradient parcels. Long-term mean and median daily discharge values at both the upper (PF1) and lower (PF3) flumes reach their annual maxima during October, then decline steadily throughout the winter and spring to their annual minima during the following June (**Figure B16**). This contrasts sharply with hydrologic variation in natural groundwater-supported wetlands of the Rocky Mountains, which typically display water level maxima in early spring and declines throughout the growing season, although secondary smaller peaks from late-summer storms are common. Discharge from the wetland complex reflects minimal winter recharge and instead increases rapidly from June to October, suggesting that the majority of recharge to the surficial aquifer near the wetland complex occurs during the growing season.

Figure B16: Spring Discharge at BHS Since 2009

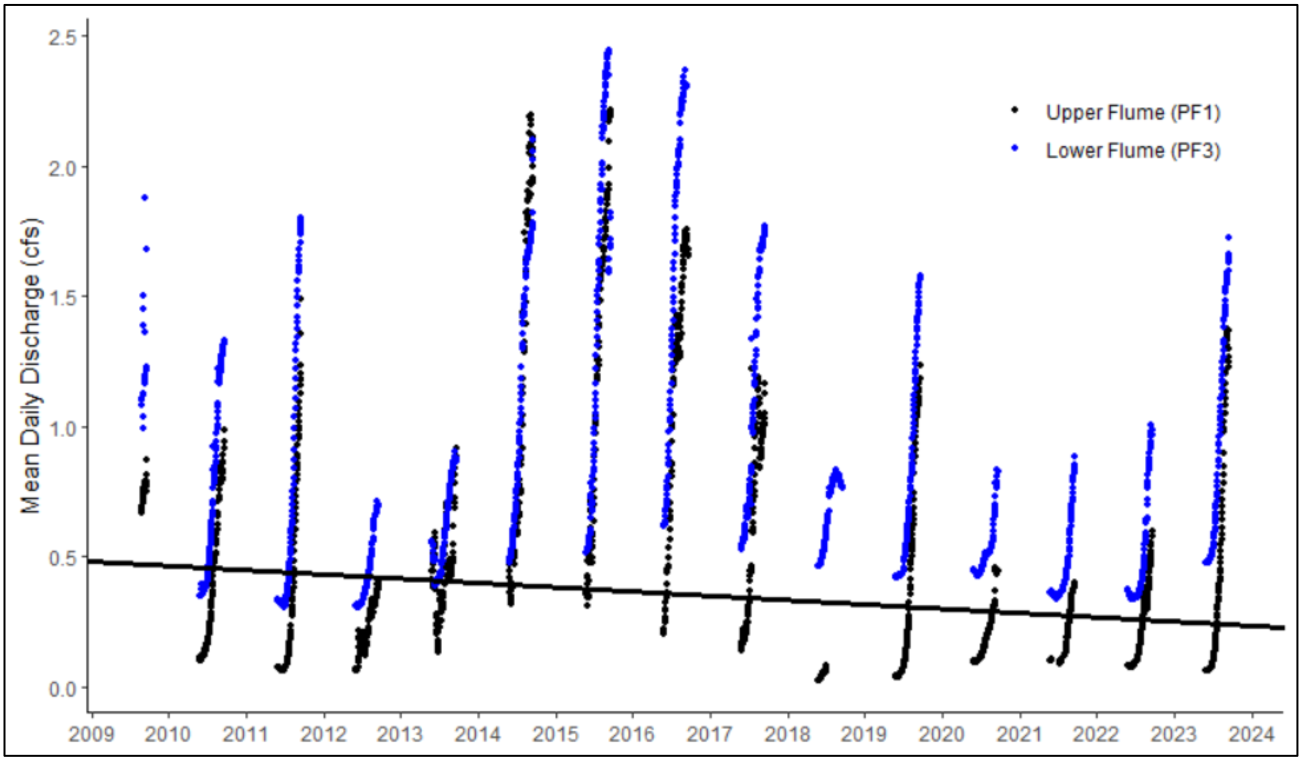


Note: Fitted lines are Mann-Kendall trends estimated from Theil-Sen slopes.

Median annual discharge from BHS has decreased since monitoring began in 2009 (**Figure B16**). Mann-Kendall tests indicate significant downward trends at both flumes ($p < 0.001$) and Theil-Sen slope estimates reflect declines in median discharge of 0.006 cfs or 2.0 percent per year at PF1, and 0.005 cfs or 0.7 percent per year at PF3, although PF3 data should be interpreted with caution until the 2023 data is verified. Despite these long-term declines, median discharge at PF1 during 2023 (0.22 cfs) was higher than the previous two years and median discharge at PF3 (0.65 cfs) was the highest since 2017. Long-term reductions in groundwater discharge from BHS could result from water table declines near the spring complex and/or increases in evapotranspiration (ET) losses. The available data do not suggest that ET rates have changed appreciably since there have not been significant increases in total vegetation cover or wetland vegetation cover since monitoring began. Instead, the available hydrologic data indicate that these changes are due to declining water levels throughout the surficial aquifer dating back to at least 2008 (AlpineEco 2023b), which is prior to the start of BlueTriton Brands groundwater withdrawals in the South Section.

Median spring discharge during the growing season (May 28 to September 20) has declined at PF1 since 2010 ($p = 0.004$), but a significant trend was not apparent for PF3 ($p = 0.43$) during 2010-2023 (**Figure B17**). The lack of a clear long-term trend in growing season discharge at PF3 contrasts with previous analysis of the 2010-2022 data (AlpineEco 2023b) and corresponds to discharges exceeding the median and mean values for most of the 2023 growing season (**Figure B17**). However, the results for PF3 should be interpreted with caution since suspected sensor drift during autumn months may have biased the growing season data. Median growing season discharge at PF1 had long-term declines of 0.016 cfs or 4.6 percent per year, indicating that declines in spring discharge are more severe during the growing season than other times of the year. Since this trend is not related to increased vegetation cover and ET demand, it is likely a result of changing irrigation rates upgradient of the North Section.

Figure B17: Spring Discharge During the Growing Season at BHS Since 2009



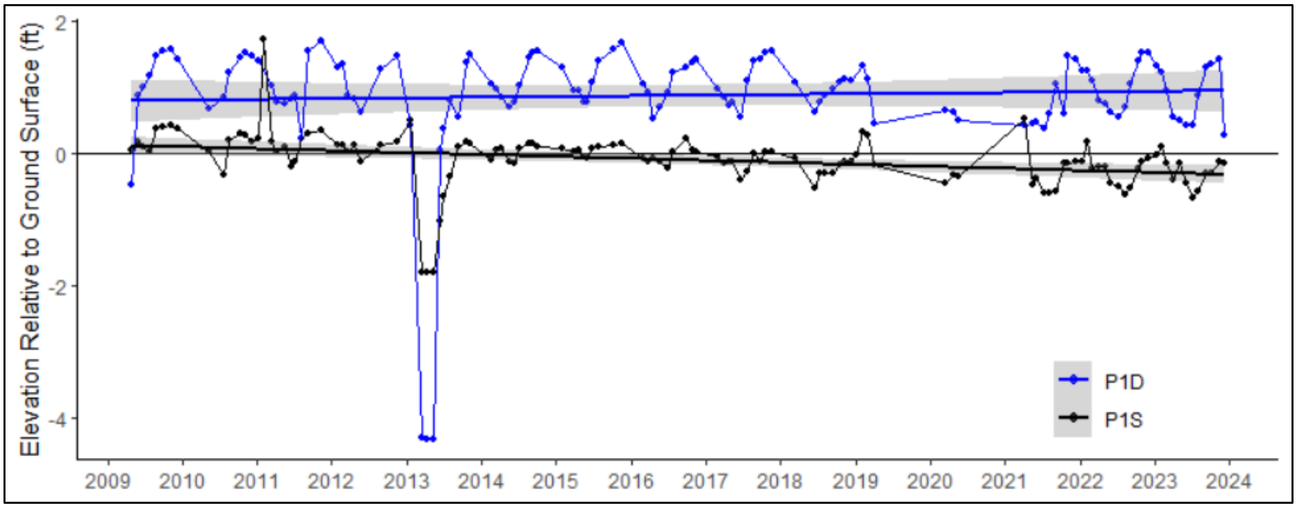
Note: Fitted lines are Mann-Kendall trends estimated from Theil-Sen slopes.

1.3.2 Piezometer Water Levels

Seasonal water level fluctuations in piezometers over the 2009-2023 monitoring period were broadly congruent with variations in BHS discharge. Water levels were lowest during May or June, and the shallow piezometers P3S, P4S, P5S, and P6S were typically dry throughout the spring and early summer months. Water level maxima occurred during September in most locations, although the peaks were later in Wetland 2. Water levels in P2S and P2D were highest during October while those in P1S and P1D peaked during November. Variability in the timing and magnitude of water level fluctuations and groundwater flow directions create distinctive hydrologic regimes across the BHS wetland complex.

Piezometer water levels in the western part of Wetland 2 reflected artesian conditions and the most hydric environment at the site (**Figure B18**). As in previous years, pressure heads in P1D during 2023 were consistently 0.5 to 1.5 feet above the ground surface, reflecting perennial upward groundwater flow towards the surface from a depth of 4.5 feet. Water levels in P1S have historically varied between 0.5 feet below the soil surface to 0.5 feet above the surface but were between 0 and 0.8 feet below the surface during 2023. No long-term trends were apparent in P1D water levels since 2009 (p = 0.58), but water levels in P1S have decreased since 2009 (p = 0.002). Declining pressure heads at depths of 1.98 feet (P1S) but not at 4.5 feet (P1D) suggest that complex near-surface hydrogeologic conditions, such as a thin aquitard (restrictive layer) between depths of 2 and 4.5 feet, is interacting with changing recharge rates. For example, a localized perched aquifer within the upper soil profile likely develops only during periods of heavy irrigation.

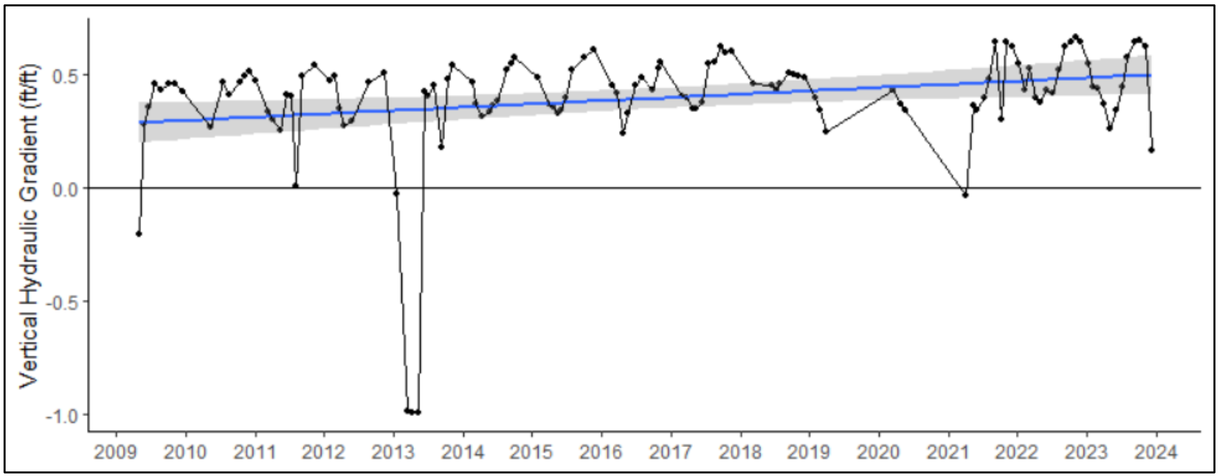
Figure B18: Water Levels in P1S and P1D Within Wetland 2 Since 2009



Note: Trends are fitted regression lines and grey ribbons are 95% confidence intervals.

Consistently positive VHGs between P1S and P1D indicate that upward groundwater movement into the root zone is common in the western part of Wetland 2 (**Figure B19**). These seasonal VHG fluctuations are similar to those in spring discharge and contrast with the characteristic hydrologic signature of sedge-dominated fens elsewhere in the region, where groundwater discharge is typically highest during spring and early summer, then declines throughout the growing season when the ET demand is highest (Cole, et al. 1997). VHGs between P1S and P1D have increased (p = 0.006) since monitoring began in 2009, due to declining pressure heads in P1S compared to stable pressure heads in P1D. Brief instances of near-zero VHGs, suggesting horizontal groundwater flow, occurred during 2011, 2013, and 2021. VHGs of about -1.0 during the summer of 2013 reflect gravitational drainage of the soil profile, and this occurred during a period of diminished spring discharge at PF1 (**Figure B17**) which is located at a similar elevation within the site.

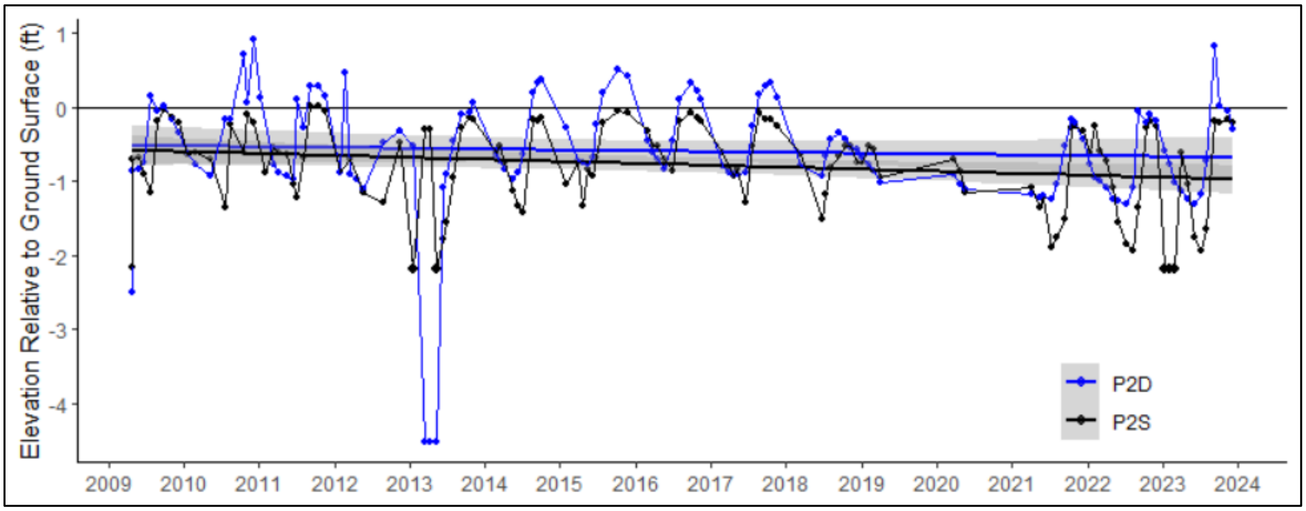
Figure B19: Vertical Hydraulic Gradients Between P1S and P1D Since 2009



Note: Positive values reflect upward groundwater flow, while negative values reflect downward flow. Zero indicates horizontal or no flow. Trend is a fitted regression line and grey ribbon is the 95% confidence interval.

Water levels in P2S and P2D from the eastern part of Wetland 2 show that the root zone here is consistently near saturation, with seasonal artesian conditions at 4.67 feet depth (P2D) during 2010-2011 and 2015-2018 (**Figure B20**). Pressure heads typically peak during October, and groundwater discharge from the soil surface occurs primarily after the growing season. In both piezometers, water level fluctuations during 2023 were slightly higher than the previous year. Water levels in P2S showed some evidence of decline since 2009 (p = 0.050), while no statistically significant changes were apparent in P2D water levels (p = 0.49) due to large seasonal variability. Declines in the shallow piezometer (P2S) and the distinctive drop in otherwise stable deep piezometer (P2D) water levels during 2013 are consistent with observations from the western part of Wetland 2.

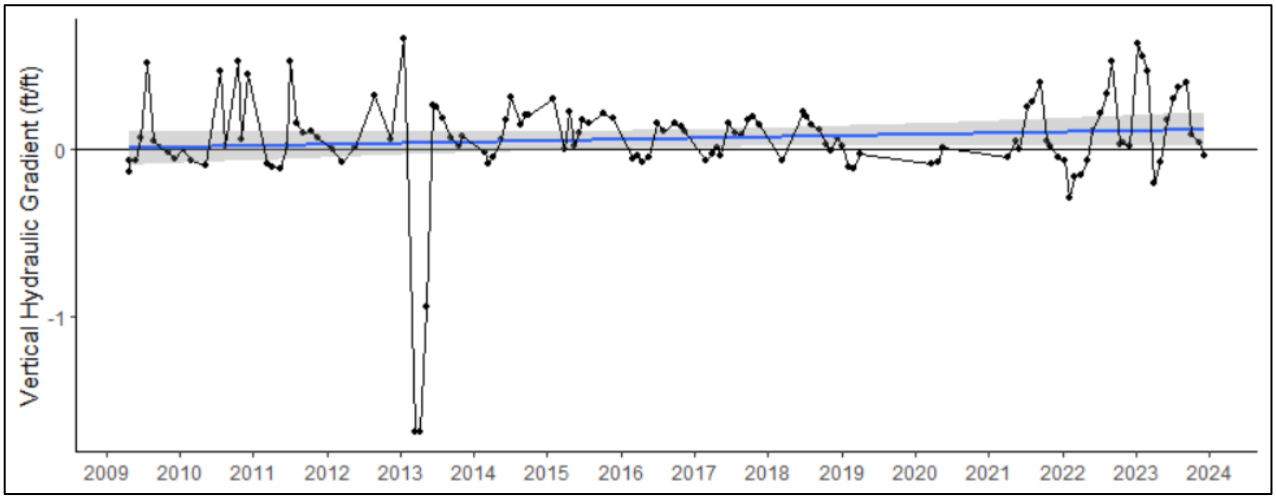
Figure B20: Water Levels in P2S and P2D Within Wetland 2 Since 2009



Note: Trends are fitted regression lines and grey ribbons are 95% confidence intervals.

VHGs between P2S and P2D typically show upward groundwater fluxes during the growing season and are otherwise near zero, indicating that groundwater movement is primarily horizontal during these times (**Figure B21**). During the drying event of 2013, VHGs below -1.0 were observed and are associated with a large winter runoff event recorded at the lower flume (**Figure B21**). This suggests that downward infiltration was enhanced by the presence of ponded surface water, since a VHG of -1.0 occurs under free gravitational drainage and additional pressure at the upper opening is required for a more negative VHG. No long-term changes in VHGs have occurred at this site (p = 0.21).

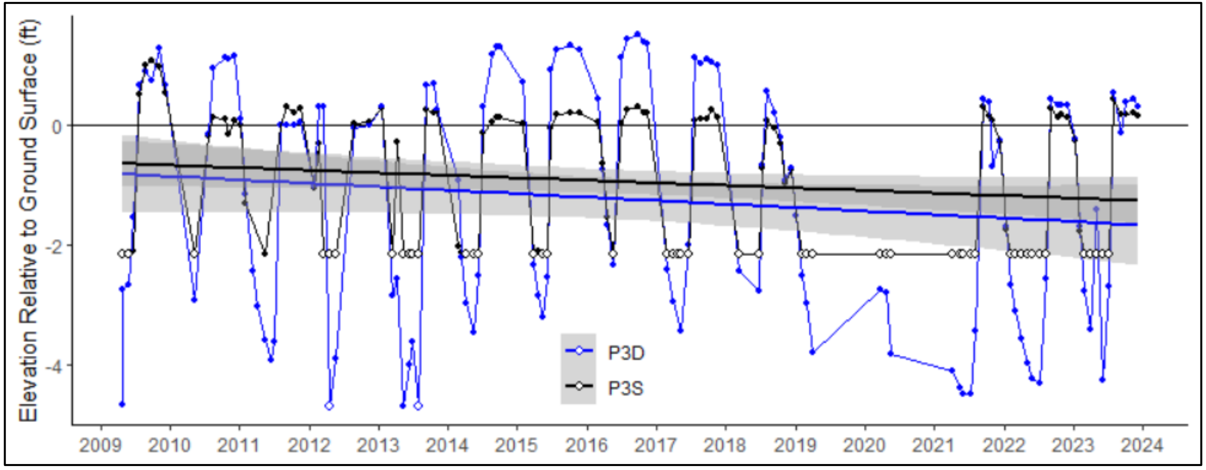
Figure B21: Vertical Hydraulic Gradients Between P2S and P2D Since 2009



Note: Positive values reflect upward groundwater flow, while negative values reflect downward flow. Zero indicates horizontal or no flow. Trend is a fitted regression line and grey ribbon is the 95% confidence interval.

Piezometers in Wetland 3 reflected seasonal water level fluctuations during 2023 that were similar to previous years and are significantly larger than those observed in Wetland 2. Artesian conditions are typical in both P3S and P3D during autumn months, although P3S is commonly dry during the first half of the year (**Figure B22**). With the addition of 2023 data, the previously observed downward trend in P3S pressure heads (AlpineEco 2023b) has abated, and the apparent long-term declines are no longer statistically significant for P3S (p = 0.065) or P3D (p = 0.14).

Figure B22: Water Levels in P3S and P3D Within Wetland 3 Since 2009



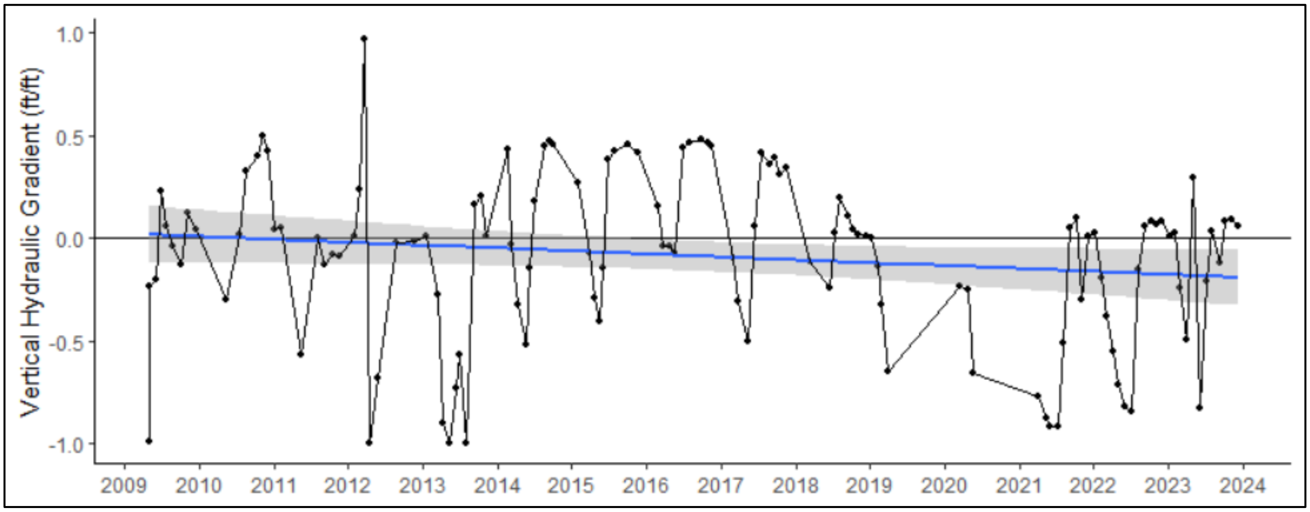
Note: Trends are fitted regression lines and grey ribbons are 95% confidence intervals. Open symbols denote dry piezometers.

Appendix B

Additional Quantitative Data

In contrast to Wetland 2, data from Wetland 3 demonstrate strong seasonal reversals in VHGs (**Figure B23**). Positive VHGs (upward groundwater flow) often occur during the autumn and sometimes during the growing season but these have declined since 2019. Seasonal water table declines occur during the first part of the year and often result in VHGs near -1.0, which reflect free drainage from the soil profile. The range of VHGs during 2023 was similar to those in 2022 and 2021, which were both lower than previous years with complete data. The fitted trend since 2009 does not provide strong evidence that VHGs are declining within Wetland 3 (p = 0.085).

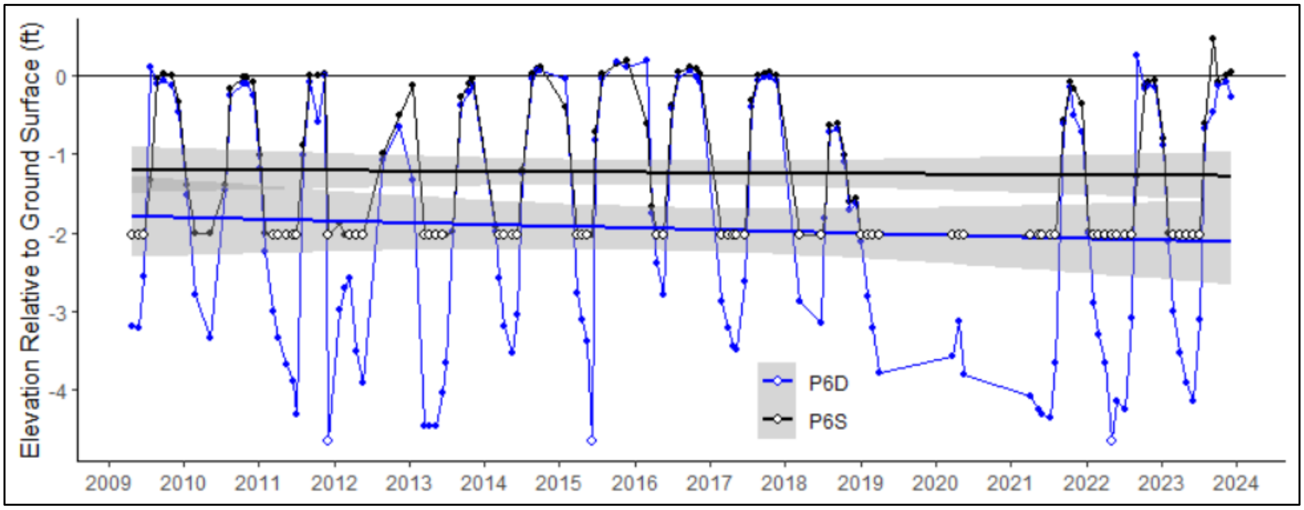
Figure B23: Vertical Hydraulic Gradients Between P3S and P3D Since 2009



Note: Positive values reflect upward groundwater flow, while negative values reflect downward flow. Zero indicates horizontal or no flow. Trend is a fitted regression line and grey ribbon is the 95% confidence interval.

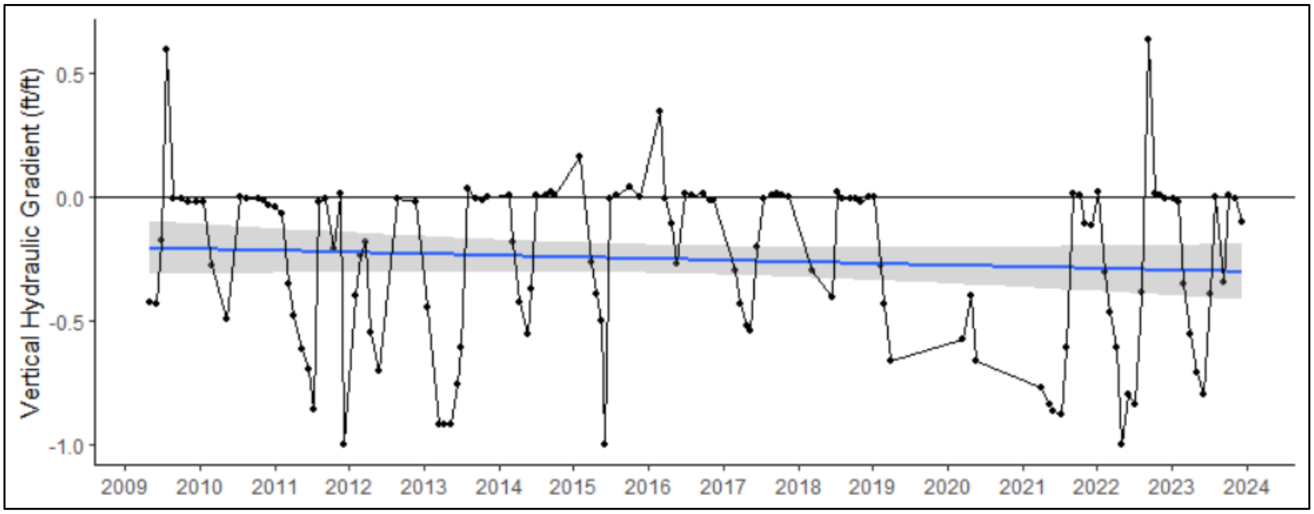
Wetland 6 exhibits seasonal water level fluctuations similar to the other wetlands, but pressure heads in both P6S and P6D rarely exceed the ground surface (**Figure B24**). As with the other sites, water level maxima occur at the end of the growing season, while minima occur at the beginning of the growing season. P6S is commonly dry during the first half of the year. No long-term trends were apparent for water levels in P6S (p = 0.75) or P6D (p = 0.47). VHGs between P6S and P6D show that groundwater flow is predominantly horizontal during the late-summer and autumn wet period, although brief spikes of upward flow do occasionally occur (**Figure B25**). As the water table falls during dry periods, negative VHGs reflect gravitational drainage. No long-term changes in VHGs are apparent at this site (p = 0.31).

Figure B24: Water Levels in P6S and P6D Within Wetland 6 Since 2009



Note: Trends are fitted regression lines and grey ribbons are 95% confidence intervals. Open symbols denote dry piezometers.

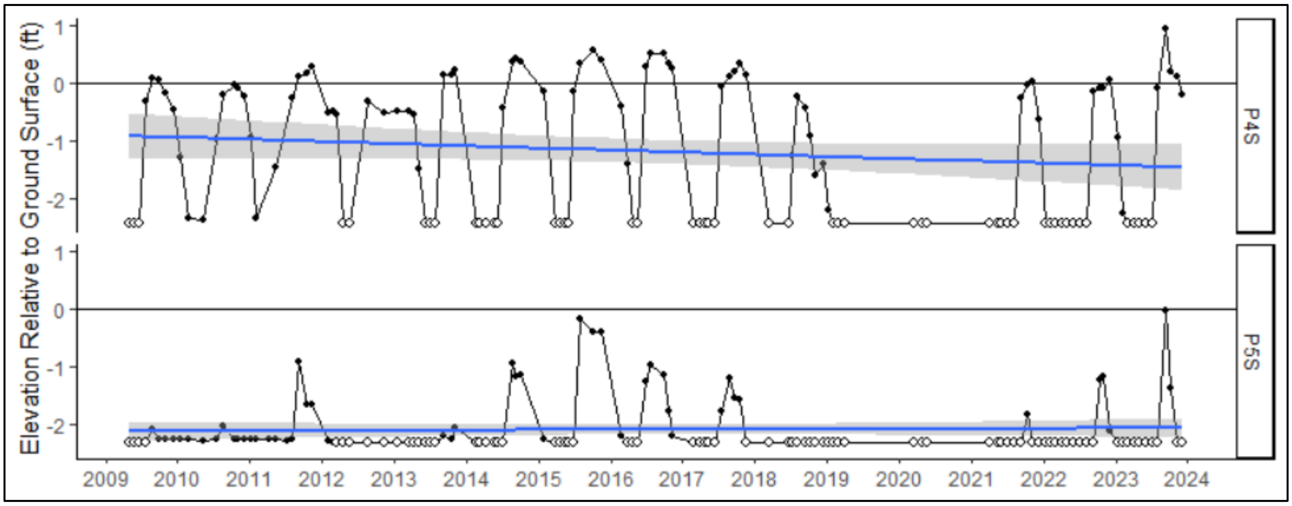
Figure B25: Vertical Hydraulic Gradients Between P6S and P6D Since 2009



Note: Positive values reflect upward groundwater flow, while negative values reflect downward flow. Zero indicates horizontal or no flow. Trend is a fitted regression line and grey ribbon is the 95% confidence interval.

Single piezometers in Wetlands 4 and 5 do not permit the calculation of VHGs but do demonstrate spatial variation in hydrologic regimes (**Figure B26**). Seasonal fluctuations at shallow depths in Wetland 4 (P4S) are similar to those in Wetland 3 (P3S), with water levels rising to near or slightly above the ground surface at the end of the growing season and otherwise falling below the piezometer opening. Wetland 5 is the driest wetland at BHS, with root-zone saturation occurring only briefly during the fall and winter months in seven of the last 15 years. This piezometer is commonly dry and recorded water levels have not reached the ground surface. No long-term trend was apparent for Wetland 4 (p = 0.11) or Wetland 5 (p = 0.71).

Figure B26: Water Levels in P4S Within Wetland 4 and P5S Within Wetland 5 Since 2009



Note: Trends are fitted regression lines and grey ribbons are 95% confidence intervals. Open symbols denote dry piezometers.

The available data indicate that hydrologic changes have occurred within the North Section wetlands since monitoring began in 2009. Spring discharge in both flumes and water levels in shallow piezometers within Wetland 2 have declined slightly since monitoring began in 2009. In contrast, no declines were apparent in deeper piezometers at Wetland 2 or the less hydric wetlands to the south (3, 4, 5, and 6). These findings are consistent with observed water table declines of 0.11 to 0.27 feet per year in the surficial aquifer east of the Arkansas River (AlpineEco 2023b), which have thus far only affected the upper elevations of the wetland complex. Similar long-term declines have occurred in monitoring wells and spring discharge at Ruby Mountain Springs (AlpineEco 2023d) and a broader analysis of hydrologic data suggests that these fluctuations are not related to groundwater withdrawals by BlueTriton Brands (SSPA 2022).

Analysis of monitoring well data from the surficial aquifer east of the Arkansas River suggests that the wetland complex is heavily influenced by irrigation practices in upgradient agricultural areas to the north (AlpineEco 2023d). Pronounced seasonal variability in spring discharge and piezometer water levels at BHS correspond to local irrigation patterns and interannual fluctuations do not appear to be strongly related to precipitation. Annual minima in spring discharge and pressure heads in all piezometers indicate that the water table within the wetland complex is lowest during the early part of the growing season (May and June). The water table rises rapidly throughout the growing season, causing pressure heads and groundwater discharge from diffuse seeps within most wetlands as well as discharge from the BHS complex to reach their maxima after the growing season, typically during October. Perennial artesian conditions and delayed maximum water levels (October and November) within Wetland 2 suggest that the northern portion of wetland is most tightly coupled to the surficial aquifer. This connection weakens to the south and east, causing Wetlands 3, 4, 5 and 6 to have shorter periods of soil saturation at the end of the growing season, and significantly deeper water table declines. In sharp contrast to Wetland 2, these drier wetlands show strong seasonal changes in vertical groundwater flow directions. Upwelling groundwater discharges at the soil surface within Wetland 3 during the late summer, but the soil profile is unsaturated during the first half of the year. Limited data suggest that similar processes operate in

Wetland 4. Wetland 6 also achieves soil saturation at the end of the growing season, but groundwater fluxes to this area are almost exclusively horizontal and the root zone is unsaturated during much of the year. The less hydric and more variable conditions in Wetlands 3, 4, 5, and 6 are caused by their location south of the BHS outflow channel, which intercepts shallow groundwater, and their elevations relative to seasonal groundwater surface elevations.

The dependence of BHS wetland hydrology on upgradient irrigation practices unrelated to BlueTriton Brands management raises questions about the long-term sustainability of the site. The available data suggest that prior to nearby agricultural development, the water table in the surficial aquifer would have been lower and the hydroperiod within current wetlands at BHS may have been more similar to a typical hydrologic signature of high water levels in the spring and lower in late summer. Any changes to upgradient irrigation practices such as application rates or cultivated acreage could lead to compositional shifts or declines in wetland vegetation, and ecological conditions of the site without the subsidy of excess irrigation are unclear. Long-term declines in groundwater discharge and vegetation shifts have occurred since monitoring began, but their relationship to offsite irrigation practices has not been analyzed to our knowledge.

2.0 Literature Cited

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Appendix C
List of Plants Observed

Appendix C

List of Plants Observed

Plants Observed at Bighorn Springs Since 2010
(Updated July 2023)[1]

Scientific Name	Common Name	Duration	Wetland Indicator Status	North Section		South Section	
				Wetlands	Uplands	Wetlands	Uplands
Forbs							
Achillea millefolium	Common Yarrow	Perennial	FACU	✓	✓	✓	✓
Androsace septentrionalis	Pygmyflower Rockjasmine	Perennial	FACU				✓
Argentina anserina	Silverweed Cinquefoil	Perennial	OBL	✓			
Artemisia biennis	Biennial Wormwood	Biennial	FACW		✓		✓
Asclepias incarnata	Swamp Milkweed	Perennial	OBL	✓			
Astragalus spp.	Milkvetch	-	-		✓		✓
Bassia scoparia	Burningbush	Annual	FAC	✓	✓	✓	✓
Campanula parryi	Parry's Bellflower	Perennial	FAC	✓			
Capsella bursa-pastoris	Shepherd's-Purse	Annual	FACU	✓			
Catabrosa aquatica	Water Whorlgrass	Perennial	OBL	✓			
Cerastium spp.	Chickweed	-	-	✓			
Chamaesyce maculata	Spotted Sandmat	Annual	UPL				✓
Chenopodium fremontii	Fremont's Goosefoot	Annual	FACU	✓			
Cicuta maculata	Spotted Water Hemlock	Perennial	OBL	✓			
Cirsium arvense	Canada Thistle	Perennial	FAC	✓	✓	✓	✓
Cirsium vulgare	Bull Thistle	Biennial	FACU	✓	✓	✓	✓
Clematis ligusticifolia	Western White Clematis	Perennial	FAC	✓		✓	
Cleome serrulata	Rocky Mountain Bee Plant	Annual	FACU	✓			
Convolvulus arvensis	Field Bindweed	Perennial	UPL	✓	✓	✓	✓
Conyza canadensis	Canadian Horseweed	Biennial	UPL			✓	

Appendix C

List of Plants Observed

Scientific Name	Common Name	Duration	Wetland Indicator Status	North Section		South Section	
				Wetlands	Uplands	Wetlands	Uplands
Descurainia incana	Mountain Tansymustard	Perennial	FACU	✓	✓	✓	✓
Descurainia pinnata ssp. *filipes*	Western Tansymustard	Biennial	UPL	✓	✓	✓	✓
Dracocephalum parviflorum	American Dragonhead	Perennial	FACU	✓			
Epilobium ciliatum	Fringed Willowherb	Perennial	FACW	✓		✓	
Equisetum arvense	Field Horsetail	Perennial	FAC	✓		✓	
Equisetum laevigatum	Smooth Horsetail	Perennial	FACW	✓	✓	✓	✓
Erodium cicutarium	Redstem Stork's Bill	Biennial	UPL	✓	✓	✓	✓
Erigeron spp.	Fleabane	-	-	✓			
Galium boreale	Northern Bedstraw	Perennial	FACU	✓			
Glycyrrhiza lepidota	American Licorice	Perennial	FAC	✓			
Grindelia squarrosa	Curlycup Gumweed	Perennial	FACU		✓		✓
Heracleum maximum	Common Cowparsnip	Perennial	FAC	✓		✓	
Heterotheca villosa	Hairy False Golden Aster	Perennial	UPL		✓		✓
Hypericum scouleri	Scouler's St. John's Wort	Perennial	FACW	✓			
Ipomopsis aggregata	Scarlet Gilia	Perennial	UPL		✓		✓
Lactuca serriola	Pricky Lettuce	Biennial	FACU	✓		✓	
Lappula occidentalis	Flatspine Stickseed	Biennial	UPL				✓
Lepidium densiflorum	Common Pepperweed	Biennial	FACU	✓	✓	✓	✓
Leucanthemum vulgare	Oxeye Daisy	Perennial	FACU	✓		✓	
Linum lewisii	Lewis Flax	Perennial	UPL				✓
Machaeranthera tanacetifolia	Tansyleaf Tansyaster	Annual	UPL		✓		✓
Medicago lupulina	Black Medick	Perennial	FACU	✓		✓	
Melilotus officinalis	Sweetclover	Perennial	FACU	✓	✓	✓	✓
Mentha arvensis	Wild Mint	Perennial	FACW	✓			

Appendix C

List of Plants Observed

Scientific Name	**Common Name**	**Duration**	**Wetland Indicator Status**	**North Section**		**South Section**	
				Wetlands	**Uplands**	**Wetlands**	**Uplands**
Mentzilia spp.	Blazingstar	-	-		✓		✓
Mertensia ciliata	Tall Fringed Bluebells	Perennial	FACW	✓			
Mimulus guttatus	Seep Monkeyflower	Perennial	OBL	✓		✓	
Nasturtium officinale	Watercress	Perennial	OBL	✓		✓	
Oenothera suffrutescens	Scarlet Beeblossom	Perennial	UPL		✓		✓
Oenothera villosa	Hairy Evening Primrose	Perennial	FAC				✓
Packera pseudaurea	Falsegold Groundsel	Perennial	FACW	✓			
Penstemon spp.	Beardtongue	-	-				✓
Phacelia alba	White Phacelia	Annual	UPL				✓
Platanthera spp.	Orchid	-	-	✓			
Polygonum lapathifolium	Curlytop Knotweed	Annual	FACW	✓		✓	
Ranunculus spp.	Buttercup	-	-	✓			
Rorippa curvipes	Bluntleaf Yellowcress	Perennial	FACW	✓			
Rorippa palustris	Bog Yellowcress	Perennial	OBL	✓			
Rudbeckia lancinata	Cutleaf Coneflower	Perennial	FAC	✓		✓	
Rudbeckia hirta	Blackeyed Susan	Perennial	FACU	✓		✓	
Rumex salicifolius var. *mexicanus*	Mexican Dock	Perennial	FAC	✓		✓	
Salsola collina	Slender Russian Thistle	Annual	UPL		✓		✓
Scutellaria galericulata	Marsh Skullcap	Perennial	OBL	✓			
Sedum spp.	Stonecrop	-	-	✓			
Sidalcea neomexicana	Salt Spring Checkerbloom	Perennial	FACW	✓			
Sisymbrium altissimum	Tall Tumblemustard	Biennial	FACU				✓
Sisyrinchium montanum	Strict Blue-Eyed Grass	Perennial	FAC	✓		✓	
Solidago altissima	Canada Goldenrod	Perennial	FACU	✓			

Appendix C

List of Plants Observed

Scientific Name	Common Name	Duration	Wetland Indicator Status	North Section		South Section	
				Wetlands	Uplands	Wetlands	Uplands
Sonchus asper	Spiny Sowthistle	Annual	FACU	✓		✓	
Sphaeralcea coccinea	Scarlet Globemallow	Perennial	UPL		✓		✓
Stephanomeria pauciflora	Brownplume Wirelettuce	Perennial	UPL		✓		✓
Taraxacum officinale	Common Dandelion	Perennial	FACU	✓	✓	✓	✓
Thalictrum fendleri	Fendler's Meadow-Rue	Perennial	FAC	✓			
Tragopogon dubius	Yellow Salsify	Biennial	UPL		✓		✓
Trifolium pratense	Red Clover	Perennial	FACU	✓			
Trifolium repens	White Clover	Perennial	FAC	✓		✓	
Typha latifolia	Broadleaf Cattail	Perennial	OBL	✓			
Urtica dioica	Stinging Nettle	Perennial	FAC	✓	✓	✓	✓
Verbascum thapsus	Common Mullein	Biennial	FACU	✓	✓	✓	✓
Verbena bracteata	Bigbract Verbena	Perennial	FAC				✓
Veronica anagallis-aquatica	Water Speedwell	Perennial	OBL	✓		✓	
Viola spp.	Violet	-	-	✓			
Graminoids							
Achnatherum hymenoides	Indian Ricegrass	Perennial	UPL		✓		✓
Achnatherum robustum	Sleepygrass	Perennial	UPL		✓		✓
Agropyron cristatum	Crested Wheatgrass	Perennial	UPL		✓		
Agrostis scabra	Rough Bentgrass	Perennial	FAC	✓			
Agrostis stolonifera	Creeping Bentgrass	Perennial	FAC	✓		✓	
Alopecurus pratensis	Meadow Foxtail	Perennial	FAC	✓			
Bouteloua gracilis	Blue Grama	Perennial	UPL		✓		✓
Bromus arvensis	Field Brome	Annual	UPL		✓		✓
Bromus ciliatus	Fringed Brome	Perennial	FAC	✓			

Appendix C

List of Plants Observed

Scientific Name	Common Name	Duration	Wetland Indicator Status	North Section		South Section	
				Wetlands	Uplands	Wetlands	Uplands
Bromus tectorum	Cheatgrass	Annual	UPL		✓		✓
Calamagrostis canadensis	Bluejoint	Perennial	FACW	✓			
Carex aquatilis	Water Sedge	Perennial	OBL	✓			
Carex echinata	Star Sedge	Perennial	OBL	✓			
Carex nebrascensis	Nebraska Sedge	Perennial	OBL	✓		✓	
Carex pellita	Woolly Sedge	Perennial	OBL	✓			
Carex praegracilis	Clustered Field Sedge	Perennial	FACW	✓			
Carex utriculata	Northwest Territory Sedge	Perennial	OBL	✓			
Catabrosa aquatica	Water Whorl Grass	Perennial	OBL	✓			
Deschampsia cespitosa	Tufted Hairgrass	Perennial	FACW	✓			
Eleocharis palustris	Common Spikerush	Perennial	OBL	✓		✓	
Elymus repens	Quackgrass	Perennial	FAC	✓	✓	✓	✓
Elymus trachycaulus	Slender Wheatgrass	Perennial	FAC				✓
Hesperostipa comata	Needle and Thread	Perennial	UPL		✓		✓
Hordeum jubatum	Foxtail Barley	Perennial	FAC	✓			
Juncus arcticus ssp. littoralis	Mountain Rush	Perennial	FACW	✓	✓	✓	✓
Juncus ensifolius	Swordleaf Rush	Perennial	FACW	✓		✓	
Lolium perenne	Perennial Ryegrass	Perennial	FAC	✓			
Nassella viridula	Green Needlegrass	Perennial	UPL		✓		✓
Pascopyrum smithii	Western Wheatgrass	Perennial	FACU	✓	✓	✓	✓
Phalaris arundinacea	Reed Canarygrass	Perennial	FACW	✓		✓	
Phleum pratense	Timothy	Perennial	FAC	✓			
Poa pratensis	Kentucky Bluegrass	Perennial	FAC	✓		✓	
Schedonorus arundinaceus	Tall Fescue	Perennial	FAC	✓			

Appendix C

List of Plants Observed

Scientific Name	Common Name	Duration	Wetland Indicator Status	North Section		South Section	
				Wetlands	Uplands	Wetlands	Uplands
Sporobolus airoides	Alkali Sacaton	Perennial	FAC	✓	✓		
Sporobolus cryptandrus	Sand Dropseed	Perennial	FACU		✓		✓
Shrubs and Subshrubs							
Alnus incana ssp. *tenuifolia*	Thinleaf Alder	Perennial	FACW	✓		✓	
Artemisia frigida	Prairie Sagewort	Perennial	UPL	✓	✓		✓
Artemisia ludoviciana	White Sagebrush	Perennial	FACU	✓			
Atriplex canescens	Fourwinged Saltbush	Perennial	UPL		✓		✓
Betula occidentalis	Water Birch	Perennial	FACW	✓		✓	
Cercocarpus montanus	Alderleaf Mountain Mahogany	Perennial	UPL		✓		✓
Chrysothamnus viscidiflorus	Yellow Rabbitbrush	Perennial	UPL		✓		✓
Cornus sericea spp. *sericea*	Redosier Dogwood	Perennial	FACW	✓			
Crataegus succulenta	Fleshy Hawthorn	Perennial	UPL	✓	✓		
Dasiphora fruticosa	Shrubby Cinquefoil	Perennial	FAC	✓			
Echinocereus viridiflorus	Nylon Hedgehog Cactus	Perennial	UPL		✓		✓
Ericameria nauseosa	Rubber Rabbitbrush	Perennial	UPL		✓		✓
Ericameria parryi	Parry's Rabbitbrush	Perennial	UPL		✓		
Eriogonum effusum	Spreading Buckwheat	Perennial	UPL		✓		✓
Eriogonum umbellatum	Sulphur-Flower Buckwheat	Perennial	UPL		✓		✓
Kraschenínnikovia lanata	Winterfat	Perennial	UPL		✓		
Linanthus pungens	Granite Prickly Phlox	Perennial	UPL		✓		✓
Lonicera involucrata	Twinberry Honeysuckle	Perennial	FAC			✓	
Machaeranthera pinnatifida	Lacy Tansyaster	Perennial	FACU		✓		✓
Opuntia polyacantha	Plains Pricklypear	Perennial	UPL		✓		✓
Pediocactus simpsonii	Mountain Ball Cactus	Perennial	UPL		✓		✓

Appendix C

List of Plants Observed

Scientific Name	Common Name	Duration	Wetland Indicator Status	North Section		South Section	
				Wetlands	Uplands	Wetlands	Uplands
Pericome caudata	Mountain Tail-leaf	Perennial	UPL				✓
Prunus virginiana var. *melanocarpa*	Black Chokecherry	Perennial	FACU		✓		✓
Rhus trilobata	Skunkbrush Sumac	Perennial	UPL		✓		✓
Ribes aureum var. *aureum*	Golden Currant	Perennial	FAC	✓	✓	✓	✓
Ribes cereum	Wax Currant	Perennial	UPL		✓		✓
Ribes inerme	Whitestem Gooseberry	Perennial	FAC	✓			
Ribes lacustre	Prickly Currant	Perennial	FAC	✓		✓	
Ribes leptanthum	Trumpet Gooseberry	Perennial	UPL		✓		✓
Rosa woodsii	Woods' Rose	Perennial	FACU	✓	✓	✓	✓
Salix bebbiana	Bebb Willow	Perennial	FACW	✓		✓	
Salix exigua	Narrowleaf Willow	Perennial	FACW	✓		✓	
Salix geyeriana	Geyer Willow	Perennial	FACW	✓			
Salix lucida spp. *lasiandra*	Pacific Willow	Perennial	FACW	✓		✓	
Salix ligulifolia	Strapleaf Willow	Perennial	FAC	✓		✓	
Salix monticola	Park Willow	Perennial	OBL	✓		✓	
Salix planifolia	Diamondleaf Willow	Perennial	OBL	✓			
Senecio riddelli	Ridell's Ragwort	Perennial	UPL		✓		✓
Symphoricarpos albus	Common Snowberry	Perennial	FACU	✓			
Tetradymia canescens	Spineless Horsebrush	Perennial	UPL		✓		✓
Ulmus pumila	Siberian Elm	Perennial	UPL				✓
Yucca glauca	Soapweed Yucca	Perennial	UPL		✓		✓
Trees							
Juniperus scopulorum	Rocky Mountain Juniper	Perennial	UPL		✓		✓
Pinus edulis	Twoneedle Pinyon	Perennial	UPL		✓		✓

Appendix C

List of Plants Observed

Scientific Name	Common Name	Duration	Wetland Indicator Status	North Section		South Section	
				Wetlands	Uplands	Wetlands	Uplands
Pinus ponderosa	Ponderosa Pine	Perennial	FACU		✓		✓
Populus angustifolia	Narrowleaf Cottonwood	Perennial	FACW	✓	✓	✓	✓

[1] Blue shading indicates non-native for Colorado, yellow and orange shading indicates Colorado Noxious Weed List C and B species, respectively (CDOA 2023), and ✓ = observed. Nomenclature, duration, nativity, and growth form (forb, graminoid, shrub/subshrub, tree) follows *PLANTS Database* (USDA, NRCS 2023). If the database designates a species as both native and non-native for Colorado, it is listed here as native; if multiple durations are provided, then the longest is listed; and if the growth form is designated as subshrub and field observations confirm more forb habit, it is listed as forb.

Appendix D
North Section Photographs

All photos taken in June or July

2010

2011

2013

2014

2015

2016

Photo point 1 – Looking east


2017


2018


2019


2021


2022


2023

Photo point 1 – Looking east

2010

2011

2013

2014

2015

2016

Photo point 2 – Looking northeast

2017

2018

2019

2021

2022

2023

Photo point 2 – Looking northeast

2010

2011

2013

2014

2015

2016

Photo point 3 – Looking east

2017

2018

2019

2021

2022

2023

Photo point 3 – Looking east


2010


2011


2013


2014


2015


2016

Photo point 4 – Looking south

2017

2018

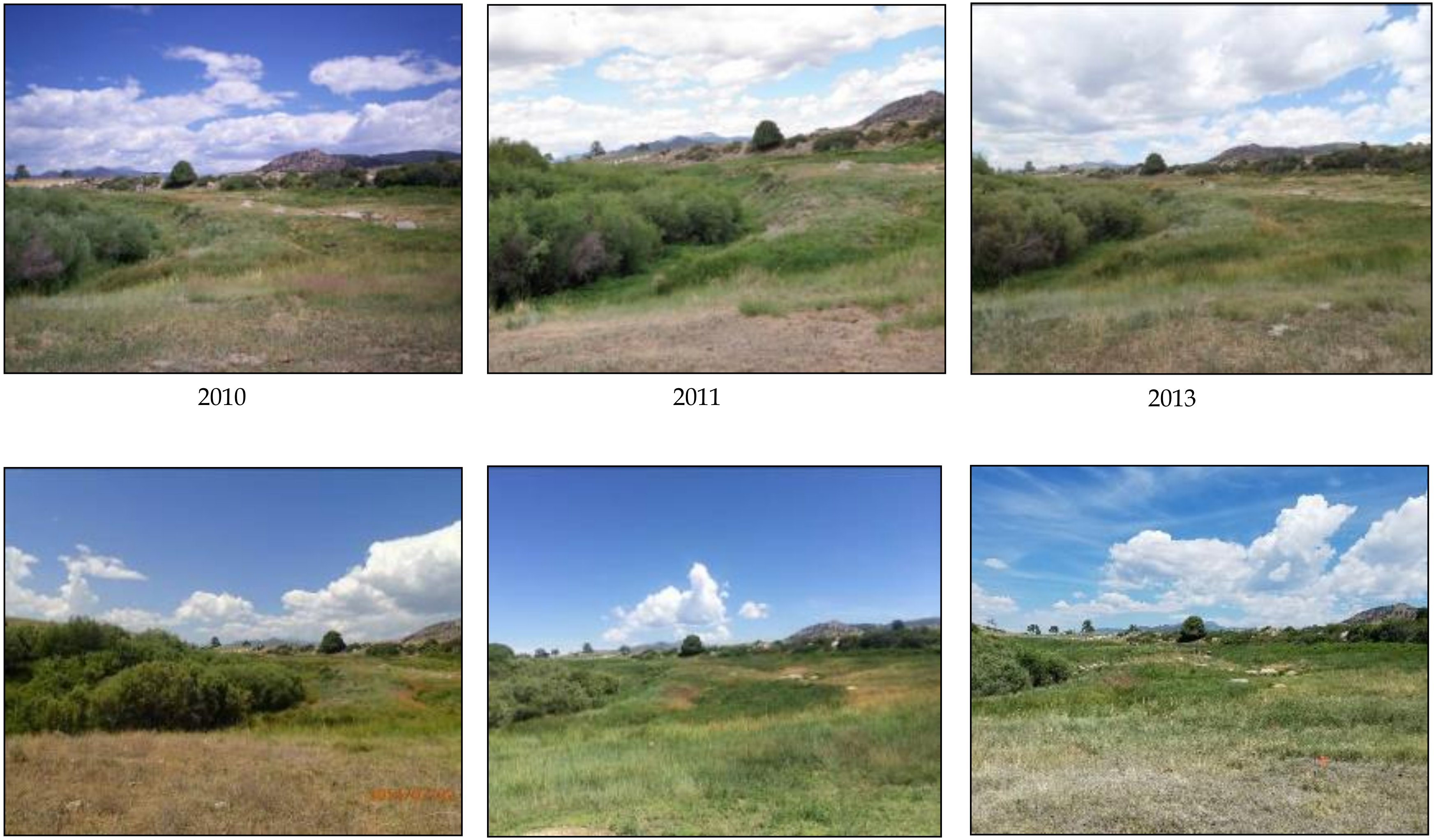
2019

2021

2022

2023

Photo point 4 – Looking south



2010

2011

2013

2014

2015

2016

Photo point 5 – Looking north

2017

2018

2019

2021

2022

2023

Photo point 5 – Looking north

2010

2011

2013

2014

2015

2016

Photo point 6 – Looking west

2017

2018

2019

2021

2022

2023

Photo point 6 – Looking west

2021

2022

2023

Photo point 7 – Looking southeast

2021 2022 2023

Photo point 8 – Looking west

2021

2022

2023

Photo point 9 – Looking northwest

2021 2022 2023

Photo point 10 – Looking southwest

2021

2022

2023

Photo point 11 – Looking southeast

2021 2022 2023

Photo point 12 – Looking northwest

2011

2015

2017

2019

2021

2023

Photo Point 13 – Looking southeast

2023

Photo Point 14 – Looking southeast

June 20, 2011

July 1, 2015

June 29, 2017

July 1, 2019

July 8, 2021

July 24, 2023

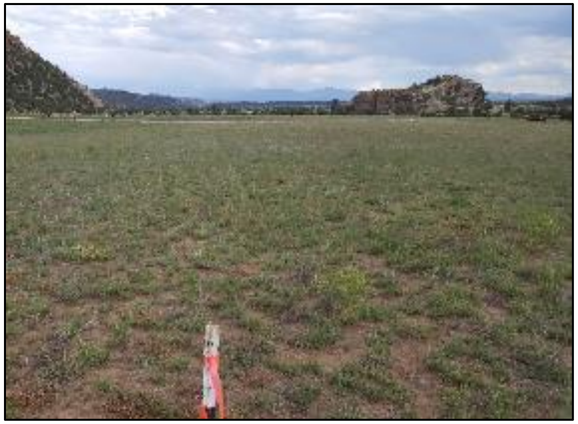
Photo Point 15 – Looking southeast

June 20, 2011

July 1, 2015

June 29, 2017

July 1, 2019



July 8, 2021

July 24, 2023

Photo Point 16 – Looking southeast

June 20, 2011

July 1, 2015

June 29, 2017

July 1, 2019

July 8, 2021

July 24, 2023

Photo Point 17 – Looking northwest

Appendix E
South Section Summer Photographs

June 8, 2012

June 10, 2014

June 10, 2015

June 20, 2016

June 26, 2017

July 2, 2019

Photo Point 1 – looking northwest

July 9, 2021

July 29, 2022

July 25, 2023

Photo Point 1 – looking northwest

June 8, 2012

June 10, 2014

June 10, 2015

June 20, 2016

June 26, 2017

July 2, 2019

Photo Point 2 – looking northeast

July 9, 2021

July 29, 2022

July 25, 2023

Photo Point 2 – looking northeast

June 8, 2012

June 10, 2014

June 10, 2015

June 20, 2016

June 26, 2017

July 2, 2019

Photo Point 3 – looking southeast

Willows blocking entire view;
new photo not taken

July 9, 2021

July 29, 2022

July 25, 2023

Photo Point 3 – looking southeast

June 8, 2012

June 10, 2014

June 10, 2015

June 20, 2016

June 26, 2017

July 2, 2019

Photo Point 4 – looking northwest

July 9, 2021

July 29, 2022

July 25, 2023

Photo Point 4 – looking northwest

June 12, 2012

June 12, 2014

June 10, 2015

June 20, 2016

June 26, 2017

July 2, 2019

Photo Point 5 – looking east

July 9, 2021

July 29, 2022

July 25, 2023

Photo Point 5 – looking east

No photo available

2012

June 10, 2014

June 10, 2015

June 20, 2016

June 26, 2017

July 2, 2019

Photo Point 6 – looking west

July 9, 2021

July 29, 2022

July 25, 2023

Photo Point 6 – looking west

July 20, 2012

June 10, 2014

June 15, 2015

June 20, 2016

June 26, 2017

July 2, 2019

Photo Point 7 – looking northwest

July 9, 2021

July 29, 2022

July 25, 2023

Photo Point 7 – looking northwest

June 8, 2012

June 10, 2014

June 15, 2015

June 20, 2016

June 26, 2017

July 2, 2019

Photo Point 8 – looking northwest

July 9, 2021

July 29, 2022

July 25, 2023

Photo Point 8 – looking northwest

August 8, 2012

June 10, 2014

June 15, 2015

June 20, 2016

June 26, 2017

July 2, 2019

Photo Point 9 – looking northwest

July 9, 2021

July 29, 2022

July 25, 2023

Photo Point 9 – looking northwest

August 8, 2013

June 10, 2014

June 15, 2015

June 20, 2016

June 26, 2017

July 2, 2019

Photo Point 10 – looking southwest

July 9, 2021

July 29, 2022

July 25, 2023

Photo Point 10 – looking southwest

July 25, 2023

Photo Point 11 – looking north

July 25, 2023

Photo Point 12 – looking southeast

July 25, 2023

Photo Point 13 – looking north

July 25, 2023

Photo Point 14– looking southeast

July 25, 2023

Photo Point 15– looking southeast

Appendix F
South Section Fall Photographs

November 16, 2012

November 15, 2013

November 18, 2015

November 15, 2016

November 15, 2017

November 15, 2018

Photo Point 1 – looking northwest

November 14, 2019

November 20, 2021

November 25, 2022

November 8, 2023

Photo Point 1 – looking northwest

November 16, 2012

November 15, 2013

November 18, 2015

November 15, 2016

November 15, 2017

November 15, 2018

Photo Point 2 – looking northeast

November 14, 2019

November 20, 2021

November 25, 2022

November 8, 2023

Photo Point 2 – looking northeast

November 16, 2012

November 15, 2013

November 18, 2015

November 15, 2016

November 15, 2017

November 15, 2018

Photo Point 3 – looking southeast

November 14, 2019

November 20, 2021

November 25, 2022

November 8, 2023

Photo Point 3 – looking southeast

November 16, 2012

November 15, 2013

November 18, 2015

November 15, 2016

November 15, 2017

November 15, 2018

Photo Point 4 – looking northwest

November 14, 2019

November 20, 2021

November 25, 2022

November 8, 2023

Photo Point 4 – looking northwest


November 16, 2012


November 15, 2013

November 18, 2015

November 15, 2016


November 15, 2017


November 15, 2018

Photo Point 5 – looking east

November 14, 2019

November 20, 2021

November 25, 2022

November 8, 2023

Photo Point 5 – looking east

No photo available

November 16, 2012

November 15, 2013

November 18, 2015

November 15, 2016

November 15, 2017

November 15, 2018

Photo Point 6 – looking west

November 14, 2019

November 20, 2021

November 25, 2022

November 8, 2023

Photo Point 6 – looking west

November 16, 2012

November 15, 2013

November 18, 2015

November 15, 2016

November 15, 2017

November 15, 2018

Photo Point 7 – looking northwest

November 14, 2019

November 20, 2021

November 25, 2022

November 8, 2023

Photo Point 7 – looking northwest

November 16, 2012

November 15, 2013

November 18, 2015

November 15, 2016

November 15, 2017

November 15, 2018

Photo Point 8 – looking northwest

November 14, 2019

November 20, 2021

November 25, 2022

November 8, 2023

Photo Point 8 – looking northwest

November 16, 2012

November 15, 2013

November 18, 2015

November 15, 2016

November 15, 2017

November 15, 2018

Photo Point 9 – looking northwest

November 14, 2019

November 20, 2021

November 25, 2022

November 8, 2023

Photo Point 9 – looking northwest

November 16, 2012

November 15, 2013

November 18, 2015

November 15, 2016

November 15, 2017

November 15, 2018

Photo Point 10 – looking southwest

November 14, 2019

No photo available

November 20, 2021

November 25, 2022

November 8, 2023

Photo Point 10 – looking southwest

November 8, 2023

Photo Point 11 – looking north

November 8, 2023

Photo Point 12 – looking southeast

Appendix G
Noxious Weed Management Plan

Appendix G

Noxious Weed Management Plan

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Appendix G

Noxious Weed Management Plan

1.0 Introduction

According to the Colorado Department of Agriculture (CDOA 2023), noxious weeds are “non-native aggressive invaders that replace native vegetation, reduce agricultural productivity, cause wind and water erosion, and pose an increased threat to communities from wildfire.” The aim of the Colorado Noxious Weed Program is to prevent the introduction of new invasive species, eradicate species with isolated or limited populations, and contain and manage those invasive species that are well-established and widespread.

The *Colorado Noxious Weed Act* (Act) governs how these plants are to be controlled, and places the responsibility for keeping our lands free of weeds on all landowners and managers in the State. The Act designates which species are considered noxious and includes the *Colorado Noxious Weed List* (List). The List is separated into four groups, including Lists A, B, C, and the Watch List. The lettered lists consist of regulated species whereas, the Watch List is an unregulated list of species that may be considered noxious in Colorado once more is known about the biology and behavior of the plants (CDOA 2023).

As of 2022, List A includes 25 plant species that have very limited distribution in Colorado and all are designated for immediate eradication. List B includes 38 species that can be locally common, but must be managed to stop their continued spreading. List C includes 16 species that are generally widespread and voluntarily managed and their inclusion in the program is to support those jurisdictions that choose to control them by providing additional education, research, and biological control resources. The Watch List is comprised of 19 species that are not regulated, but that CDOA has determined pose a potential threat to the agricultural productivity and environmental values of the lands of Colorado.

2.0 Weed Management

Based on field surveys (AlpineEco 2023), eight noxious weed species have been documented on the Property including three List B and five List C species. These species are listed in **Table 1**, along with their listing status, general habitat preference, and relative distribution.

Table 1: Colorado-Listed Noxious Weeds Observed

Common Name[1]	Scientific Name[1]	Status[1]	General Habitat Preference	Relative Distribution in Suitable Habitat[2]	
				North Section	South Section
Downy Brome	*Bromus tectorum*	C	Open uplands	Few	Abundant
Canada Thistle	*Cirsium arvense*	B	Open riparian areas and other moist sites	Common	Abundant
Bull Thistle	*Cirsium vulgare*	B	Open riparian areas and other moist sites	Common	Common
Field Bindweed	*Convolvulus arvensis*	C	Open uplands and riparian areas	Abundant	Abundant
Quackgrass	*Elymus repens*	C	Open riparian areas and other moist sites	Common	Common
Red-Stem Filaree	*Erodium cicutarium*	C	Open uplands	Common	Common
Oxeye Daisy	*Leucanthemum vulgare*	B	Open riparian areas and other moist sites	Few	Abundant
Common Mullein	*Verbascum thapsus*	C	Open uplands	Few	Common

[1] Plant names and status from CDOA 2023; List B = State mandate to stop the continued spread of these species; List C = State mandate to provide additional education, research, and biological control resources for these species

[2] Relative distribution in suitable habitat: few = <1 percent cover; common = 1 to 5 percent cover; abundant = >5 percent cover based on visual estimates

This plan includes information on the species that have been prioritized for management and will be updated if new species are found or prioritized, or if new information becomes available that would affect the management approach.

2.1 Management Goals and Objectives

Effectively managing noxious weeds requires implementing various management actions in accordance with project goals and objectives. The goal of this plan is to help restore and maintain a healthy native vegetation community on the Property.

The noxious weed management objectives are intended to support the management goal and there are two main objectives:

- Reduce the aerial extent of existing noxious weed populations
- Prevent the establishment of new noxious weed populations

These objectives will generally be met by performing on-going treatments and other maintenance on weed populations annually. Specific management actions that will help ensure meeting the objectives are listed in the following section.

2.2 Management Actions

The information and actions discussed in the following sections are adapted from *Creating An Integrated Weed Management Plan* (CDOA 2000), and the identification and management fact sheets published by the Colorado Department of Agriculture (CDOA 2023). The fact sheets, which summarize the characteristics and treatment options for each species, are included in **Attachment A** and provide more detailed information. Generally, an integrated approach of chemical, mechanical, biological, and cultural controls is the most effective way to manage noxious weeds, as described below:

- Chemical control involves the application of one or more herbicides at the appropriate time of the year (all herbicides should be applied by a certified applicator according to the manufacturer's directions).
- Mechanical control usually involves mowing, hand-pulling, or cutting.
- Biological control is the use of organisms (usually insects, but also livestock) that are deliberately introduced to an area to control weeds.
- Cultural controls seek to manage weeds by maintaining healthy habitats or establishing desired plant species.

Of the eight noxious weed species observed, three are List B species that warrant treatment (Canada Thistle, Bull Thistle, and Oxeye Daisy). Since the List C species found in both the North and South sections are widespread and generally not found in defined populations, treatment of these species is not prioritized or recommended. However, management actions for one List C species (Common Mullein) have been included because it is common in the South Section and individual plants are large enough to easily treat.

All the recommended control approaches listed below were developed in coordination with the County Weed Department (Malone 2021 and 2023).

2.3.1 Canada Thistle


Canada Thistle
Source: CDOA 2022

Plant Description: Canada Thistle is a non-native perennial List B species that infests croplands, pastures, rangelands, roadsides, and riparian areas in Colorado between 4,000 and 9,000 feet above mean sea level. It has spiny, alternate, green leaves and numerous white to purple flowers less than 1 inch in diameter that appear in early summer. It has both horizontal and vertical roots. The horizontal roots produce many shoots, while the vertical roots store water and nutrients. It is usually 2 to 4 feet tall and reproduces primarily by the horizontal roots (all root fragments can form a new plant) and seed, which can remain viable in the soil for several years.

Chemical Control: *Perspective* applied to spring rosettes until flowering or *Milestone* applied in spring at pre-bud growth stage until flowering and/or to fall regrowth.

<u>Mechanical Control</u>: Mowing can be effective if it is done every two to three weeks through the growing season. Hand-pulling or tilling can make infestations worse.

<u>Biological Control</u>: Cattle, goats, and sheep will graze on young plants (in the spring) and, when combined with herbicide application, may be effective. A pathogenic rust fungus (*Puccinia punctiformis*) has been shown to be very effective at reducing infestations. It is Canada Thistle specific and is safe to use around water, livestock, and other plants. Sites treated with rust fungus are best left untouched after the application (no herbicide, heavy grazing, or mowing) and significant declines in the number of thistle stems are usually seen one to two years after treatment, with most plants dead within four years. Although the infection is not always obvious in the aboveground plant tissue, typically the diseased thistle shoots that emerge in the spring appear unusually tall, sparse, and are covered with yellow speckling (spores) on the underside of the leaves. In late spring to early summer, diseased shoots will usually cross with other nearby diseased shoots and the spores on leaf tissues will turn a rusty red-brown color. Spores from diseased shoots from the spring will infect neighboring stems throughout the summer via wind-blown spores. Finally, during late summer or fall, diseased stems die and the leaf tissue falls on fall emergent rosettes that allow the fungus to quickly move to the roots where it overwinters.

<u>Recommended Control Approach</u>:

North Section – Since rust fungus has been applied at the site, an annual site visit should be conducted in May with the County Weed Department to survey for the presence of the fungus and to document the location of any found. If the fungus is not well established, any discrete populations of Canada Thistle should be chemically treat in June and August. If the fungus is well established, herbicide treatments may not be necessary and should be determined in coordination with the County Weed Department. Apply more fungus if available.

South Section – Same as North Section.

Canada Thistle Rust application, photo taken September 9, 2021

2.3.2 Bull Thistle


Bull Thistle
Source: CDOA 2022

Plant Description: Bull Thistle is a non-native biennial List B species that often invades pastures, rangeland, roadsides, and logged areas in Colorado between 5,000 and 10,800 feet above mean sea level. It has alternate leaves that are prickly-hairy on top and cottony-hairy on the bottom. It has pinkish to dark purple flowers 1.5 to 2 inches in diameter that are clustered at the ends of the branches and appear in late summer. It only produces by seed and forms a basal rosette its first year. The rosette survives a winter season and then produces a vertical stem that flowers. After flowering and seed production, the plant dies. Seeds are viable for one to three years.

Chemical Control: *Perspective* applied from seedling through bolting stage; *Milestone* applied to rosettes through bolting stage in spring or to fall rosettes; *Telar* applied in spring from bolting to bud stage; or *Transline* applied to rosettes through flower bud stage in spring or to fall rosettes.

Mechanical Control: Hoeing or digging to sever the roots just below the soil surface is effective. Mowing or chopping can stimulate more flower production and is only recommended if done in consecutive years. Bag and remove all flower heads and buds to prevent unintentionally spreading seed.

Biological Control: Grazing is ineffective and can increase Bull Thistle densities. Cattle avoid it and horses, goats, and sheep may consume flowers on a few young plants but seeds likely pass through their digestive tracks unaltered. No other biological controls are available.

Recommended Control Approach:

North Section – Remove basal rosettes and bolted plants by hoeing or digging in June and again in August. Bag and remove all flower heads and buds to prevent unintentionally spreading seed.

South Section – Same as North Section.

2.3.3 Oxeye Daisy


Oxeye Daisy
Source: CDOA 2022

Plant Description: Oxeye Daisy is a non-native perennial List B species that infests meadows, pastures, roadsides, and stream corridors in Colorado at elevations between 5,000 and 11,000 feet above mean sea level. It has lance-shaped, alternate leaves that become progressively smaller upward along the stem. It has solitary, white ray flowers (with yellow disk flowers in the center) 1 to 3 inches in diameter at the end of each branch and mature plants are typically 10 to 24 inches tall. It has shallow branched rhizomes and reproduces by seed and roots. Seeds can remain viable in the soil for up to 38 years.

Chemical Control: *Milestone* applied at the pre-flower bud growth stage or *Escort XP* (with surfactant) applied at flower stage.

Mechanical Control: Repeated hand-pulling or digging when soil is moist can be effective. Bag and remove all flower heads and buds to prevent unintentionally spreading seed.

Biological Control: Goats or sheep can be effective at reducing densities. No other biological controls are available.

Recommended Control Approach:

North Section – Hand-pull when flowering but before seeding (July/August), and when soil is moist (after rain event). Bag and remove all flower heads and buds to prevent unintentionally spreading seed.

South Section – Hand-pull when flowering but before seeding (July/August), and when soil is moist (after rain event). Bag and remove all flower heads and buds to prevent unintentionally spreading seed. For large stands, carefully spray individual plants using a backpack or other small sprayer with *Milestone* before flowering (June). Use 7 ounces/24 gallons of water with non-ionic surfactant and spray plants until wet but not dripping. For small patches of plants, hand-pull when soil is moist (after rain event). Bag and remove all hand-pulled flower heads and buds to prevent unintentionally spreading seed.

2.3.4 Common Mullein

Plant Description: Common Mullein is a non-native biennial List C species that infests meadows, pastures, roadsides, and other sites with dry, coarse-textured soils in Colorado at elevations between 4,500 and 9,500 feet above mean sea level. It has large, light-green, alternate leaves that are covered with soft hairs. It forms a basal rosette the first year, which can grow up to 30 inches in diameter. Second year's growth results in stout stems up to 6 feet tall, topped with numerous yellow flowers grouped into a long, cylindrical head. It has a deep taproot along with a shallower fibrous root system. It only reproduces by seeds, which can remain viable in the soil for up to 100 years.

Common Mullein
Source: CDOA 2022

Chemical Control: *Telar XP*, *Grazon P+D, Tordon 22K*, or *Cimmaron* applied to rosettes in spring or fall, prior to bolting.

Mechanical Control: Hand-pulling or digging when soil is moist and prior to seed production is effective. Bag and remove all flower heads and buds to prevent unintentionally spreading seed.

Biological Control: Livestock avoid Common Mullein. A seed eating weevil is being used in eastern Washington, but not approved for use in Colorado.

Recommended Control Approach:

North Section – Remove basal rosettes or bolted plants by hoeing or digging when soil is moist (after rain event) in June and again in August. Bag and remove all pulled plants.

South Section – Remove basal rosettes or bolted plants by hoeing or digging when soil is moist (after rain event) in June and again in August. Bag and remove all pulled plants. For large stands, carefully spray individual plants using a backpack or other small sprayer with *Milestone* before flowering (June). Use 7 ounces/24 gallons of water with non-ionic surfactant and spray plants until wet but not dripping. For small patches of plants, hand-pull when soil is moist (after rain event). Bag and remove all hand-pulled flower heads and buds to prevent unintentionally spreading seed.

2.3.5 Other Management Actions

In addition to the specific management actions listed for each species above, the following general actions will be implemented (as appropriate) to minimize the spread of noxious weeds:

- New ground disturbance will be avoided
- Any equipment brought on-site will be thoroughly cleaned beforehand
- Any seed mixes, soil, or other plant materials used on-site will be free of noxious weed seeds, roots, and other propagules.
- Herbicides will be applied in accordance with the manufacturer's instructions, using equipment capable of precise spraying (e.g. backpack sprayer), and not over applied.
- Only herbicides approved for use in water will be used in or within 25 feet of wetlands or other water features
- Herbicide spraying will only occur when weather conditions are suitable, including calm winds and no precipitation expected within 24 hours

3.0 Conclusion

The weed management goal is to restore and maintain a healthy native vegetation community on the Property. There are two objectives that support the goal: 1) reduce the aerial extent of existing noxious weed populations and 2) prevent the establishment of new noxious weed populations. To meet these objectives, the Property should be assessed for Colorado List A, B, C, and Watch List noxious weeds annually and weeds managed accordingly. Effective management includes a combination of chemical, mechanical, biological, and/or cultural actions that should be taken as needed, in coordination with the County Weed Department.

4.0 Literature Cited

AlpineEco. 2023. *2022 Bighorn and Ruby Mountain Springs Noxious Weed Management Plan*. Prepared for BlueTriton Brands. January 25.

Colorado Department of Agriculture (CDOA). 2000. *Creating An Integrated Weed Management Plan*. Caring for the Land Series, Volume IV. Prepared with Colorado Natural Areas Program, Colorado State Parks, and Colorado Department of Natural Resources.

Colorado Department of Agriculture (CDOA). 2023. https://ag.colorado.gov/conservation/noxious-weeds/species-id.

Malone, K. 2021. Personal communication between Kayla Malone (Chaffee County Weed Department) and Nevin Schaeffer (S.S. Papadopulos & Associates, Inc.) regarding noxious weed treatments.

Malone, K. 2023. Personal communication between Kayla Malone (Chaffee County Weed Department) and Andy Herb (AlpineEco) regarding noxious weed treatments.

US Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS). 2022. *PLANTS Database*. http://plants.usda.gov/plants/index.html. Accessed in December.

Attachment A
Noxious Weed Fact Sheets

Canada Thistle Identification and Management

List B

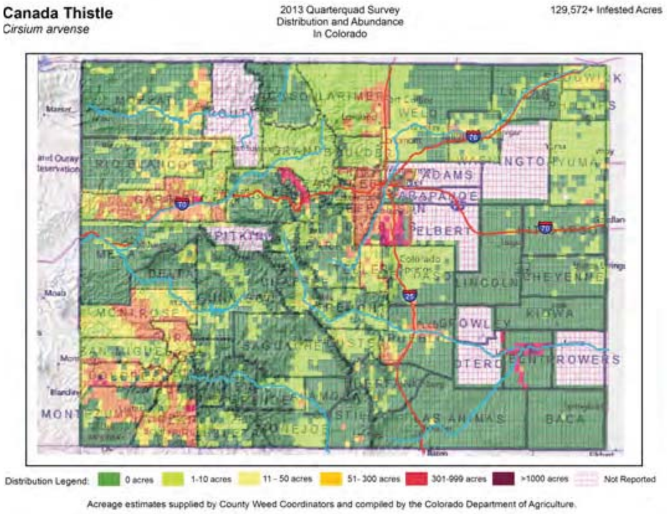
Canada thistle (*Cirsium arvense*) is a non-native, deep-rooted perennial that spreads by seeds and aggressive creeping, horizontal roots called rhizomes. Canada thistle can grow 2 to 4 feet in height. The leaves are oblong, spiny, bright green, and slightly hairy on the undersurface. Unlike other noxious biennial thistles which have a solitary flower at the end of each stem, Canada thistle flowers occur in small clusters of 1 to 5 flowers. They are about 1 cm in diameter, tubular shaped, and vary from white to purple in color.

Canada thistle emerges from its root system from late April through May. It flowers in late spring and throughout the summer. It produces about 1,000 to 1,500 seeds per plant that can be wind dispersed. Seeds survive in the soil for up to 20 years. Additionally, Canada thistle reproduces vegetatively through its root system, and quickly form dense stands. Each fragmented piece of root, 0.25 inch or larger, is capable of forming new plants. The key to controlling Canada thistle is to eliminate seed production and to reduce the plant's nutrient reserves in its root system through persistent, long-term management.

Canada thistle is one of the most troublesome noxious weeds in the U.S. It can infest diverse land types, ranging from roadsides, ditch banks, riparian zones, meadows, pastures, irrigated cropland, to the most productive dryland cropland. Large infestations significantly reduce crop and cattle forage production and native plant species. It is a host plant to several agricultural pests and diseases. Canada thistle prefers moist soils, but it can be found in a variety of soil types. It has been found at elevations up to 12,000 feet.

Effective Canada thistle control requires a combination of methods. Prevention is the most important strategy. Maintain healthy pastures and rangelands, and continually monitor your property for new infestations. Established plants need to be continually stressed. Management options become limited once plants begin to produce seeds. Details on the back of this sheet can help to create a management plan compatible with your site ecology.

2013 Quarter Quad Survey



Canada thistle is designated as a "List B" species as described in the Colorado Noxious Weed Act. It is required to be either eliminated, contained, or suppressed depending on the local infestations. For more information visit www.colorado.gov/ag/weeds and click on the Noxious Weed Program link or call the State Weed Coordinator at the Colorado Department of Agriculture, Conservation Services Division, (303) 869-9030.

Key ID Points

1. Cluster of 1-5 white to purple flowers on a stem.
2. Floral bracts are spineless.
3. Small flowers that are 1 cm in diameter.
4. Perennial, rhizomatous plant with spiny, oblong, green leaves.

Canada thistle

Cirsium arvense

List B

Integrated Weed Management Recommendations

Canada thistle

Cirsium arvense

Integrated weed management is imperative for effective Canada thistle control. This weed needs to be continually stressed, forcing it to exhaust root nutrient stores, and eventually die. Mowing or grazing can be followed up with herbicide application. Avoid hand-pulling and tilling which can stimulate the growth of new plants.

CULTURAL

Prevention is the best control strategy. Maintain healthy pastures , riparian areas, and rangelands. Prevent bare ground caused by overgrazing, and continually monitor your property for new infestations. Establishment of select grasses can be an effective control.

BIOLOGICAL

Cattle, goats, and sheep will graze on Canada thistle when plants are young and succulent in the spring. Follow up grazing with a fall herbicide application. Insects are available, and provide limited control. Currently, collection and distribution methods for Canada thistle rust (*Puccinia punctiformis*) are being refined. For more information on Canada thistle biocontrol, contact the Colorado Department of Agriculture - Palisade Insectary at (970) 464-7916.

MECHANICAL

Due to Canada thistle's extensive root system, hand-pulling and tilling create root fragments and stimulate the growth of new plants. Mowing can be effective if done every 10 to 21 days throughout the growing season. Combining mowing with herbicides will further enhance Canada thistle control.

CHEMICAL

The table below includes recommendations for herbicides that can be applied to rangeland and some pastures. Treatments may be necessary for an additional 1 to 3 years because of root nutrient stores. Always read, understand, and follow the label directions.

Herbicide	Rate	Application Timing
Aminopyralid* (Milestone)	5-7 oz. product/acre + 0.25% v/v non-ionic surfactant OR 1 teaspoon product/gal water + 0.32 oz./gal water	Apply in spring at the pre-bud growth stage until flowering and/or to fall regrowth. Can also add chlorsulfuron (Telar) at 1 oz./acre to the mix.
Clopyralid + Triclopyr (Prescott; Redeem; others)	3 pints product/acre + 0.25% v/v non-ionic surfactant OR 1.25 oz. product/gal water + 0.32 oz./gal water	Apply until flowering and/or fall regrowth.
Aminocyclopyrachlor + chlorsulfuron (Perspective)*	5.5 oz. product/acre + 0.25% v/v non-ionic surfactant	Apply to spring rosette to flower bud growth stage; or fall. IMPORTANT: Applications greater than 5.5 oz. product/acre exceeds the threshold for selectivity. DO NOT treat in the root zone of desirable trees and shrubs. Not for use on grazed or feed forage.

Note: *Product not permitted for use in the San Luis Valley.

Additional herbicide recommendations for this and other species can be found at:
goo.gl/TvWnv9

Updated:
07/2015

Colorado Department of Agriculture - Conservation Services
305 Interlocken Parkway
Broomfield, CO 80021
(303) 869-9030
www.colorado.gov/ag/weeds

Bull Thistle Identification and Management

List B

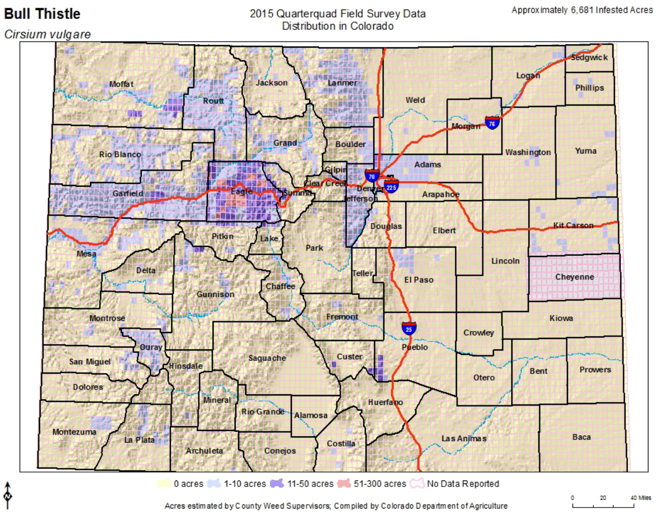
Bull thistle

Cirsium vulgare (Savi) Ten.


© Iowa Plants

Bull thistle, *Cirsium vulgare* (Savi) Ten., is a biennial forb that was introduced to North America as a seed contaminant. Flowers are in a raceme arrangement. The gumdrop-shaped disk flowers are pinkish to dark purple in color and 1 ½ to 2 inches in diameter. The pappus has feather-like bristles; the receptacle is densely bristly. The flower bracts are somewhat tapered and covered with spines 2-5 mm long. Leaves are alternate with deeply lobed margins that are spiny. In mature plants the base of the leaves clasp the stem and extend down the stem to the lower node. The plant has one short, fleshy taproot with several lateral roots. There is debate about the effectiveness of self-pollination in bull thistle; outcrossing though pollination produces an abundance of viable seed. Flower buds and heads that are removed from the stalk can still mature and become viable. Seeds are capped with a circle of plume-like white hairs. Seeds remain viable for approximately three years. Mature plants can produce up to 4,000 seeds per plant. Bull thistle generally needs soil temperature between 50° and 80°F, moisture and canopy gaps to germinate seeds.

2015 Quarter Quad Survey



Bull thistle invades dry to moist environments. It prefers nitrogen-rich soils, and it grows on gravelly to clay-textured soils It thrives in areas such as pastures, overgrazed rangeland, roadsides, and logged areas. Bull thistle infestations are heaviest in the northwestern portion of Colorado. It is widespread throughout the United States and parts of Canada.

Heavy infestations reduce livestock forage. The presence of bull thistle in hay decreases the forage value and lowers the market price. It is an aggressive weed, but it will not withstand cultivation. Bull thistle is often a transient species, appearing in recently disturbed areas and becoming a dominant species for several years if left untreated. It can cause hay fever in some individuals.

Maintaining healthy pastures and rangeland, guarding against disturbance or overuse is the best prevention measure against bull thistle. As with most biennials, limiting seed production is critical to effective control. Chemical control is the most effective and efficient method of eradication if applied during the rosette stage, spring or early fall. To reduce seed production, plants with buds or flowers should be collected and bagged, disposed of or destroyed. Mechanical control, such as pulling, has limited effectiveness.

Bull thistle is designated as a "List B" species in the Colorado Noxious Weed Act.   It is required to be eradicated; some populations may be contained or suppressed depending on state regulations. For state regulations described for each county, refer to the most recent Rule, or visit www.colorado.gov/ag/co-weedcontacts for details.


© Bruce Ackley, OH State University


© Steve Dewey, UT State University

Key ID Points

1. Flowers arranged in a raceme; flower is gum-drop shaped.
2. Base of leaves clasp the stem & extend down the stem to node below
3. Top surface of leaves have stiff, rough hairs

List B

Integrated Weed Management Recommendations

Bull thistle

Cirsium vulgare (Savi) Ten.

Effective integrated management means using a variety of eradication methods that also includes restoration, prevention of seed production and dispersal, and monitoring. Maintain robust healthy native landscapes and restore degraded sites. Avoid soil disturbance. As with most biennials, prevent seed production in the first and second year of bull thistle growth. Prevent seed from dispersing, such as on contaminated equipment. Rest sites until they are effectively restored.


© Bonnie Million, NPS

CULTURAL CONTROL METHODS

Since bull thistle germinates in canopy gaps, maintain or restore a competitive forb and cool and warm season grass assemblage to reduce spacing between plants. Use locally adapted and ecologically appropriate seeds whenever possible to improve competitiveness. Ensure annual species are included in the native seed mix as well as perennial. Incorporate soil amendments, soil microbes and mycorrhizal fungi in restoration efforts. Manage land uses so they do not cause soil disturbance or create bare mineral soil.


© Eric Coombs, OR Dept of Agriculture

BIOLOGICAL CONTROL METHODS

Horses, goats and sheep may eat flower heads on a few young individual plants, but seeds likely pass through their digestive tracks unaltered; cattle avoid bull thistle. Dense stands and large plants are usually avoided. Thus, bull thistle can become an “increaser” in over-grazed systems. Properly managed grazing can improve vigor of desired plants and indirectly reduce bull thistle. There is a biological control agent for this species, the bull thistle gall fly, *Urophora stylata*, but it was found to be ineffective in Colorado. Since it is not ethical to promote ineffective non-native insects in the state, this fly is not available in Colorado. For more information, visit the Colorado Department of Agriculture’s Palisade Insectary website at www.colorado.gov/ag/biocontrol.


© UAF Cooperative Extension

MECHANICAL CONTROL METHODS

Methods, such as hoeing, tilling and digging, are best for infestations smaller than 0.5 acres. Sever roots below the soil surface during the first year before the plant stores energy, and in the second year before seed production. Mowing, chopping and deadheading stimulates more flower production; these methods require consecutive years of season-long treatments. Flower heads and buds must be collected, bagged, and disposed of or destroyed; seeds will mature and germinate if left on the ground. Prescribed fire that leads to high soil burn severity can damage roots and above ground biomass of bull thistle but also damages desired plants. Fire favors bull thistle and is not recommended.

CHEMICAL CONTROL METHODS

NOTE: The following are recommendations for herbicides that can be applied to pastures and rangeland. Rates are approximate and based on equipment with an output of 30 gal/acre. Follow the label for exact rates. Always read, understand, and follow the label directions. The herbicide label is the LAW!

HERBICIDE	RATE	APPLICATION TIMING
Aminopyralid* (Milestone)	6 oz. product/acre + 0.25% v/v non-ionic surfactant	Apply to rosettes through bolting stage in spring, or to fall rosettes. *Product not permitted for use in the San Luis Valley.
Chlorsulfuron** (Telar)	1 oz. product/acre (0.75 oz. active ingredient/acre)+ 0.25% v/v non-ionic surfactant	Spring from bolting to bud stages. **This herbicide has residual soil activity that will affect all broadleaf seedlings germinating after application has occurred.
Clopyralid (Transline)	0.67-1.33 pints product/acre + 0.25% v/v non-ionic surfactant	Apply to rosettes through flower bud stage in spring, or to fall rosettes.
Aminocyclopyrachlor + chlorsulfuron (Perspective)*	4.75-8 oz. product/acre + 0.25% v/v non-ionic surfactant	Apply from the seedling to the bolting stage. IMPORTANT: Applications greater than 5.5 oz. product/acre exceeds the threshold for selectivity. DO NOT treat in the root zone of desirable trees and shrubs. Not for use on grazed or feed forage. *Product not permitted for use in the San Luis Valley.

Rev.
11/16

Oxeye Daisy Identification and Management

List B

Oxeye daisy

Leucanthemum vulgare

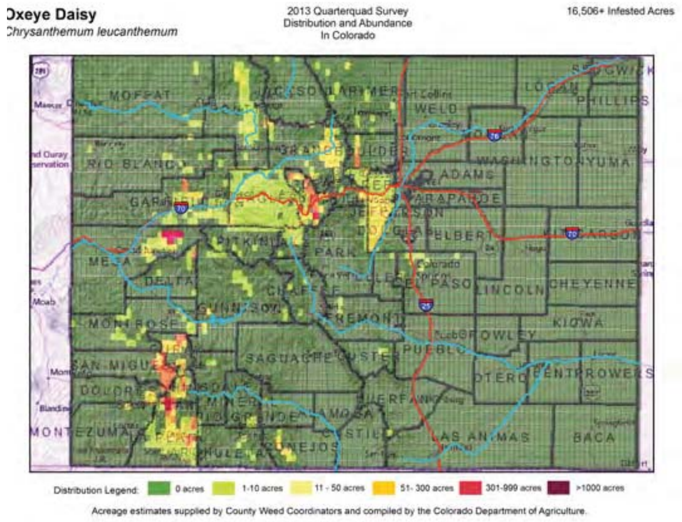
Oxeye daisy (*Leucanthemum vulgare*) was introduced from Europe as a seed contaminant and as an ornamental. It is a rhizomatous, creeping, short-lived perennial that grows 10 inches to 2 feet tall. The basal and lower leaves are spoon-shaped, toothed, and with long petioles (leaf stem). The upper leaves are narrow, toothed, and clasp the stem. Flowers bloom between June and August. The flowers are 1 to 3 inches in diameter, with 15 to 30 white ray flowers, and mostly solitary. The phyllaries beneath the flower head are green with a dark brown margin. One flower head can produce up to 200 seeds. Oxeye daisy spread vegetatively from roots, root fragments, or by seed. Seeds may be viable up to 38 years or more. Infestation sites needs to be monitored for at least 10 years after the last flowering plant has been eliminated and treatments repeated when necessary. Ornamental Shasta daisy (*Leucantheum* x *superbum*) is not an aggressive invader and looks similar to oxeye daisy, but it is 6 to 12 inches taller and has larger flowers.

Oxeye daisy is an strong competitor. It forms dense stands that reduce native plant diversity. It degrades pastures and natural areas because cattle and wildlife avoid feeding on oxeye daisy. Heavy infestations may reduce nutrient cycling due to a shallow root system and create areas of bare soil, thus increasing soil erosion.

Habitats for oxeye daisy included mountain meadows, grasslands, pastures, streams, gardens, waste grounds, railway, and roadsides. Oxeye daisy typically grows in high elevations, up to 11,000 feet in Colorado.

The key to effective control of oxeye daisy is education and prevention. Oxeye daisy has been included in many different seed mixes, thus consumers should carefully read the label prior to planting so-called "native wildflower" mixes. Homeowners and land managers often overlook the impacts and the need to manage this weed because of the plant's attractiveness. Details on the back of this sheet can help to create a management plan compatible with your site ecology.

2013 Quarter Quad Survey



Oxeye daisy is designated as a "List B" species in the Colorado Noxious Weed Act. It is required to be either eliminated, contained, or suppressed depending on the local infestations. For more information visit www.colorado.gov/ag/weeds and click on the Noxious Weed Management Program. Or call the State Weed Coordinator at the Colorado Department of Agriculture, Conservation Services Division, (303) 869-9030.

Key ID Points

1. 15-30 white ray flowers on flowerheads that are 1-3 inches in diameter.
2. Rosette and lower leaves are spoon-shaped and toothed.
3. Upper leaves on the stem are narrow, toothed, and clasp the stem.

List B

Integrated Weed Management Recommendations

Oxeye daisy

Leucanthemum vulgare

Oxeye daisy has been included in many different seed mixes, thus consumers should carefully read the label prior to planting so-called "native wildflower" mixes. Repeated hand pulling can eliminate small infestations. Mowing or grazing by sheep or goats can be effective, in addition with a chemical approach.

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CULTURAL

Generate awareness for this noxious weed. Carefully inspect "wildflower" seed mixes; do not plant mixes that include *Leucanthemum vulgare*. Avoid overgrazing, disturbance, and seed dispersal. Bare ground is prime habitat for weed invasions. Tall perennial grasses that shade oxeye daisy are good competitors.

BIOLOGICAL

Goats or sheep can be effective in the control of oxeye daisy. There are no insect biological controls available for oxeye daisy. For more information on biocontrols, contact the Colorado Department of Agriculture-Palisade Insectary at 970-464-7916.

MECHANICAL

Repeated hand pulling or digging when soil is moist and infestations are small. Oxeye daisy is fairly shallow rooted; pull up as much of the root as possible. If removed during or after flowering, bag specimens carefully so as to not scatter seeds. Mowing before flowering or when flower buds are present can limit dispersal; do not mow during or after flowering. Tilling at 6 inches or deeper, and repeated shallowly as necessary, can control patches.

CHEMICAL

The table below includes recommendations for herbicides that can be applied to rangeland and pastures. 0.25% v/v non-ionic surfactant is equivalent to 0.32 oz/gal of water or 1 pt/100 gal of water. Always read, understand, and follow the label directions. The herbicide label is the LAW!

Herbicide	Rate	Application Timing
Aminopyralid (Milestone)	4-6 oz./acre + 0.25% v/v non-ionic surfactant	Optimum control when applied at the pre-flower bud growth stage.
Metsulfuron (Escort XP)	1 oz. product/acre + 0.25% v/v non-ionic surfactant	Surfactant is absolutely necessary. Optimum control when applied at flowering growth stage. 1 oz. product is the minimum eradication rate based on best treatment observed in several CSU

Additional herbicide recommendations for this and other species can be found at:
goo.gl/TvWnv9

Updated:
07/2015

Colorado Department of Agriculture - Conservation Services
305 Interlocken Parkway
Broomfield, CO 80021
(303) 869-9030
www.colorado.gov/ag/weeds

Common mullein

Verbascum thapsus

Colorado Department of Agriculture

305 Interlocken Pkwy
Broomfield, CO 80021

(303) 869-9030
weeds@state.co.us

Identification and Management

Identification and Impacts

Common mullein (*Verbascum thapsus*) is a biennial forb native to Europe and Asia. The first year of the plant it produces a basal rosette. Basal rosettes can grow to 30 inches in diameter. The leaves are light-green in color and are covered in fine soft hairs. The woolly leaves are alternate and overlapping each other and can grow over a foot long. In spring of the second year the plant bolts an erect stem, that grows 2 to 6 feet tall. The flowers of the plant are borne in terminal spikes. These terminal spikes may reach up to 20 inches in length. The flowers are sulfur-yellow in color and have five petals. The flowers range from 3/4 of an inch to 1 1/2 inches in diameter. Numerous two chambered fruits produce 100,000 to 250,000 seeds per plant. Flowering and seed production typical occur from June to August. The plant has a deep taproot along with a fiberous root system.

Habitats for Common mullein are roadsides, waste places, right-of-ways, pastures, hay fields, and abandoned lands. It prefers gravelly soil types, but can grow in other soil types. Livestock will avoid eating Common mullein, due to the hairy leaves of the plants. The plants were originally introduced as a medicinal plant. The Europeans used the flowers for tea, and the leaves for many remedies like burns and rashes. Both the Europeans and the Indians smoked the dried leaves to treat bronchitis.

The key to effective control of Common mullein is preventing the production of seeds. This plant is difficult to control due to the large amount of seed produced and seed bank left in the soil. Mechanical, cultural, biological and chemical treatments can be successful if utilized together in an integrated weed management plan. Details on the back of this sheet can help to create a management plan compatible with your site ecology.

Common mullein is designated as a "List C" species on the Colorado Noxious Weed Act. It is required to be either eradicated, contained, or suppressed depending on the local jurisdictions managing this species. For more information, visit www.colorado.gov/ag/weeds or call the State Weed Coordinator at the Colorado Department of Agriculture, Conservation Services Division, 303-239-4100.

Photos © All Photos from Kelly Uhing, Department of Agriculture; Except Bottom left Mary Ellen (Mel) Harte, United States

Key ID Points

Updated on:
08/09

Common mullein

Management Recommendations

CULTURAL
Cultural control can be effective in assistance with other treatment options. Once the parent plants have been removed, cultivating the area with desirable grasses and forbs may outcompete Common mullein seedlings. For specific seed recommendations contact your local Natural Resources Conservation Services for seed mixes.

BIOLOGICAL
Gymnetron tetrum, a seed eating weevil, biological control has been found in eastern Washington State and is currently working on populations there. The weevil has not yet been approved for use in Colorado. Contact the Palisade Insectary of the Colorado Department of Agriculture at 970-464-7916 for more information.

MECHANICAL
Hand pull or dig when soil is moist, prior to flowering and seed production can be effective. If flowers are present, bag specimens carefully so as not to scatter any potential seeds. The key to effective control is to prevent seed production and/or spread.

Integrated Weed Management:

Preventing the establishment and the seed production of Common mullein is key to controlling populations. If the population is established, using a combination of cultural, chemical, biological and mechanical treatments can aid in suppressing population size. Since plants produce thousands of seed treatments need to occur over an extended period of time.

HERBICIDES

NOTE: The following are recommendations for herbicides that can be applied to range and pasturelands. Rates are approximate and based on equipment with an output of 30 gal/acre. Please read label for exact rates. Always read, understand, and follow the label directions. The herbicide label is the LAW!

HERBICIDE	RATE	APPLICATION TIMING
Chlorsulfuron (Telar XP)	1-3 oz/acre	Apply to rosette stages in spring or fall prior to bolting. Add non-ionic surfactant @ 0.32 oz/gal water or 1 pt/100 gal water.
2,4-D Picloram (Grazon P+D *this is a Restricted Use Pesticide*)	4 pts/acre	Apply to rosette stages in spring or fall prior to bolting. Add non-ionic surfactant @ 0.32 oz/gal water or 1 pt/100 gal water. DO NOT apply near trees/shrubs/high water table.
Picloram (Tordon 22K *this is a Restricted Use Pesticide*)	1-2 qts/acre	Apply to rosette stages to early growth stages in spring or fall. Add non-ionic surfactant @ 0.32 oz/gal water or 1 pt/100 gal water. DO NOT Apply near trees/shrubs/high water table.
Metsulfuron (Cimmaron)	1.0 oz/acre	Apply to rosette stages in spring or fall. Add non-ionic surfactant @ 0.32 oz/gal water or 1 pt/100 gal water.

Photos © Top to Bottom; Kelly Uhing, Colorado Department of Agriculture; Whitney Cranshaw, Colorado State University, Bugwood.org; Kelly Uhing, Colorado Department of Agriculture

Exhibit 3

2023 Surface Water and Groundwater Monitoring Report, Chaffee County, Colorado

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Executive Summary

BlueTriton Brands, Inc. (BTB) conducts baseline characterization of hydrogeological conditions for the Pinedale Alluvial Outwash aquifer in compliance with Chaffee County Resolution No. 2021-58 and the Surface- and Groundwater Monitoring and Mitigation Plan (SGWMMP) prepared as a requirement of its 1041 Permit. BTB has made a commitment to ensure the effects of groundwater diversions are localized and restricts pumping operations within the terms of its permits. Long-term monitoring data is collected and routinely evaluated to confirm there are no adverse impacts to surface water, groundwater, wetlands, or other water users. This annual report presents a summary of the observations from the 2023 water year (November 1, 2022, through October 31, 2023) within the context of prevailing hydrogeological conditions, and provides an assessment of the potential for up-gradient effects attributable to the commercial spring water operations.

During the 2023 water year, monitoring data from stations near and up-gradient of the Ruby Mountains Springs indicate: precipitation, surface water flows, and groundwater levels were above average compared to available historical records; Arkansas River flows measured at nearby and downgradient gaging stations were near average; and snowpack (snow water equivalent) measured in the closest available SNOTEL station was below historical average. Diversion data for irrigation activities up-gradient of the springs is posted on the DWR website for some structures in 2023, but per DWR correspondence, is still being reviewed for errors and consistency.

BTB operated its two production wells within the terms of Conditions 4.29 and 4.30 of the 1041 Permit and its Well Use Permits. Starting in October 2023, the backup production well was brought online, and both boreholes are operating simultaneously. Total combined daily, monthly, and annual withdrawals were below the limits of 0.884 acre feet per day, 16.6 acre feet per month, and 196 acre feet per year, respectively. Groundwater elevations at Ruby Mountain Springs were above average, and drawdown from pumping did not cause water levels to drop below the permit limit at any time. The effects from spring water withdrawals were minimally observed at nearby monitoring wells at the Ruby Mountain Springs site but were not observed at other up-gradient monitoring wells nor at the Bighorn Springs site.

Observations from the BTB long-term monitoring records indicate that 1) the effect of local precipitation in the Arkansas River Valley on the aquifer appears to be minimal, if observed at all, 2) aquifer recharge via groundwater inflows from the mountains directly east of Ruby Mountain Springs is significant, and 3) the fluctuation of groundwater levels in the Pinedale Aquifer tends to reflect recharge by irrigation water but the water quality in the Ruby Mountain Springs is consistent and is not affected by the seasonal influxes of the irrigation water into the alluvial aquifer. It is the downgradient termination of the Pinedale Outwash Aquifer east of the Arkansas River and the recharge into the aquifer from underflow from the mountains to the east that create the robust level of spring discharge and the consistency of the geochemistry of the spring water. During the history of BTB monitoring, and similarly for the 2023 water year, spring flow and spring water quality have been relatively consistent, and observations demonstrate a sustainable water resource.

Section 1
Physical Setting and General Information

The Ruby Mountain Springs are located in the Upper Arkansas River Valley near Buena Vista, Chaffee County, Colorado, on the east bank of the Arkansas River (Figure 1.1). This Annual Report is prepared in accordance with Condition 4.7 of Resolution No. 2021-58, which states that BlueTriton Brands (BTB), the entity that acquired Néstle Waters North America (NWNA) "…shall submit an annual report to the County … that describes progress on the Project, Operation of the Project and compliance with Permit conditions, including but not limited to water pumping operations and replacement of depletions (augmentation); wetland and groundwater monitoring…" The Surface- and Ground-Water Monitoring and Mitigation Plan (SGWMMP), submitted by NWNA to Chaffee County on April 29, 2010, satisfies Condition 4.14 of Resolution No. 2021-58, and provides an outline for developing a baseline characterization of hydrologic conditions, and sets requirements for monitoring and evaluating any impacts on local water resources due to pumping at the Ruby Mountain Springs site.

Spring water is collected from two boreholes (RMBH-3 and RMBH-2) located a few hundred feet upslope of the Ruby Mountain Springs. The production boreholes are screened at depths of approximately 40 to 55 feet below ground surface (bgs) in a sand and gravel aquifer. Spring water is then piped 6 miles to a 30,000 gallon water silo at a tanker-truck loading station, where it is transported by truck to the BTB bottling plant in Denver. Testing at borehole RMBH-2 began in January 2008 and withdrawals began in June 2010 and production of bottled water commenced in August 2010. Condition 4.29 of the 1041 Permit allows concurrent pumping, and as of October 2023, withdrawals for the production of bottled water are from both RMBH-2 and RMBH-3 concurrently.

BTB has committed to Chaffee County to conduct periodic surface water and groundwater monitoring as a means to characterize hydrologic conditions and to document any effects, if observed, from diversions by BTB. Annual diversions are not to exceed 196 acre-feet. The typical instantaneous pumping rate for the RMBH-3 borehole is approximately 100 gallons per minute (gpm) and is operated on an on-demand schedule driven by water tanker movements at the tanker load station. Details on average monthly pumping rates can be found in Section 2.7. Effects from withdrawals to present have been shown to be minimal, localized, and have not produced adverse impacts to surface water, groundwater, wetlands, nearby water resources or neighbors.

1.1 Definition of Sustainable Use

The accepted definition of sustainable use for BTB is "the current use of this resource does not endanger future use of this resource under normal, known, or projected conditions for continued business operation. Future use of the resource may be modified from current usage to enable this." This report presents background information and current conditions for Ruby Mountain Springs in Chaffee County, Colorado, and aims to assess the sustainability of the resource under current and projected conditions.

1.2 Existing Sustainability Assessments

USGS Scientific Investigations Report "*Hydrogeology and Quality of Groundwater in the Upper Arkansas River Basin from Buena Vista to Salida, Colorado, 2000-2003*" (Watts, 2005), describes the hydrogeology and quality of groundwater in the principal aquifers in the Upper

Arkansas River Basin. Watts notes that depletion of groundwater storage could have the largest effects on groundwater sustainability in areas in which the alluvial outwash and basin fill aquifers are not readily recharged by infiltration from streams, mountain front recharge, or infiltration of surface water diversions because recharge from precipitation is small to non-existent. The report estimates future withdrawals and consumptive use by domestic and household wells from 2003 to 2030 and concludes that if consumptive use rates and return rates are correct, then augmentation plans will be required for new water supply wells in the study area, except possibly near perennial streams or areas irrigated with surface water diversions.

A related 2006 USGS Fact Sheet entitled "*Sustainability of Ground-Water Resources in the Upper Arkansas River Basin between Buena Vista and Salida, Colorado 2000-2003*" (Watts, 2006) further outlines the importance of groundwater resources for the growing populace in Chaffee County. The fact sheet presents a preliminary assessment of groundwater resources for 2003 conditions and projected 2030 conditions and concludes that 2003 withdrawals are approximately one percent of reasonably accessible groundwater resources. Watts concludes that groundwater resources are generally sustainable for projected 2030 population growth scenarios; however, local groundwater depletion is possible within the basin where withdrawals are high and recharge is low.

BTB has consistently found that the water production is sustainable and is not depleting local groundwater resources, across a 15-year history since withdrawals began in 2008. These conclusions and supporting data have been presented to Chaffee County in a series of annual reports since 2010.

1.3 Setting

The Ruby Mountain Springs and Bighorn Springs sites are located in the Upper Arkansas River Valley approximately 90 miles (125 highway miles) southwest of Denver and seven miles south-southeast of Buena Vista in Chaffee County, Colorado (Figure 1.1). The Upper Arkansas River Valley flows north-south within an intermountain basin flanked by the Sawatch Mountain Range and Continental Divide to the west, the Southwest Front Range (also referred to as the Arkansas Hills) to the east, and the Mosquito Range to the northeast. The climate is semiarid and largely influenced by the mountain ranges bounding the valley. Surface waters near the springs in the eastern valley include the Arkansas River, Trout Creek, Arnold Gulch, and irrigation diversions.

Ruby Mountains Springs (previously named the Hagen Springs) emanates at the site of a former fish hatchery on the east bank of the Arkansas River located 0.7 river miles (3,600 feet) downstream from Bighorn Springs (previously named Arnold Gulch Springs). Both springs discharge groundwater from the unconsolidated, coarse sand-and-gravel deposits associated with the Pinedale outwash aquifer (ENSR/AECOM, 2008a) into localized drainages which empty into the adjacent Arkansas River, which is lower in elevation. The Ruby Mountain Springs production boreholes are located approximately 200 to 500 feet north of the springs discharges and intercept the same water-bearing strata in the Pinedale outwash as the associated springs. The U.S Food and Drug Administration (FDA) Standard of Identity (SOI) for spring water boreholes were demonstrated during pumping tests performed at RMBH-2 in January 2008 (ENSR/AECOM, 2008b) and at RMBH-3 in December 2011 (Malcolm-Pirnie 2011).

In compliance with permitting for the development of a spring water source, NWNA augmented existing information with a network of monitoring locations throughout the east valley up-gradient of the springs (Figure 1.2). Three monitoring programs are maintained in accordance with the SGWMMP: 1) up-gradient monitoring; 2) Bighorn Springs monitoring; and 3) Ruby Mountain Springs monitoring. Station locations and parameters measured for the monitoring network are listed in Table 1.1.

Spring flow and water level monitoring at the Ruby Mountain Springs and Bighorn Springs sites began in January 2007. Expansion of the monitoring network continued through 2010 and included installation of surface water gauges near the springs (including 2 staff gauges, 3 flumes, and 1 weir) and groundwater monitoring wells throughout the valley east of the Arkansas River (from north of Highway 24/285 to Ruby Mountain Springs). Automatic dataloggers were installed in many of the wells and gauges within the network in April 2008. In addition, weather and precipitation monitoring data and irrigation diversions in the valley are also compiled from monitoring conducted by others.

1.3.1 Up-gradient Monitoring

Groundwater levels in the Pinedale outwash aquifer are monitored through a network of 10 monitoring wells shown on Figure 1.2. Five wells are required monitoring locations in accordance with the SGWMMP (Table 1.1). The wells were completed by NWNA (except for Well A, which was converted from an existing water supply well to a monitoring well) and monitoring was initiated in April 2008.

1.3.2 Bighorn Springs Monitoring

Bighorn Springs emerge from coarse alluvial deposits of the Pinedale outwash aquifer along a tributary drainage of Arnold Gulch, an ephemeral dry wash that extends from an alluvial fan at the base of the foothills to the river at the southern end of the spring site. Bighorn Spring #1 (upper Bighorn Spring) is located 7,675 feet above mean sea level (feet amsl), and Bighorn Spring #3 (lower Bighorn Spring) is located 7,658 feet amsl. The property is grassland used for periodic, short-term cattle grazing and contains no existing structures other than monitoring stations.

Spring flow monitoring of the upper Bighorn Spring (Bighorn Parshall Flume 1 {BHPF-1}) began in 2007. The monitoring network was expanded in 2008 and 2009 to include a combined spring discharge flow gauge (Bighorn Parshall Flume 3 {BHPF-3}), a staff gauge, a network of piezometers to monitor shallow water levels for wetlands delineation, and four groundwater monitoring wells (BHMW-1, BHBH-1, BHBH-2, and BHBH-3). Daily average flows for BHPF-1 and BHPF-3 are calculated from automated stage measurements using the USBR equations for a Parshall flume (USBR, 2001). In July 2017, a piezometer was installed upstream of the Bighorn Parshall Flume 1 (BHS-P1) to collect spring water samples on a quarterly basis.

Well BHMW-1 was installed concurrently with the up-gradient monitoring wells in April 2008. BHBH-1 and BHBH-2 are test boreholes installed in November and December 2007, respectively, as part of NWNA work to evaluate the development potential of Bighorn Springs as a production water source. Preliminary aquifer tests were performed for BHBH-1 and BHBH-2 in early May 2008 (ENSR/AECOM, 2008b), and BHBH-2 was further investigated during an additional aquifer test in February 2009 (ENSR/AECOM, 2009). The Bighorn Springs have never been developed or used as a source of spring water for NWNA's or BTB's operations.

1.3.3 Ruby Mountain Springs Monitoring

The Ruby Mountain Springs site, which was purchased by NWNA in 2009, includes several spring discharges that emanate from the east bank of the Arkansas River between 7,650 to

7,630 feet amsl near the base of Sugarloaf Mountain (Figure 1.2). The former fish hatchery, which operated until 1997, included concrete-lined fish runs, a groundwater piping system, and multiple buildings on a terrace that parallels the Arkansas River. As part of NWNA's dedication to environmental protection and natural resource management, NWNA voluntarily committed to reclamation of the fish hatchery to a more natural state thereby enhancing the value of wetland and riparian habitat at the springs site.

Reclamation of the former fish hatchery infrastructure was completed in March through May 2012 where the former hatchery infrastructure was removed, and functional wildlife and trout habitat restored. Construction activities included creation of a new pond, revitalization of the stream channel system and associated wetland areas, and elimination of ungauged overland surface flows that were previously discharging to the Arkansas River upstream of the weir and downstream of the Parshall Flume. Also, the Upper Ditch, which was created to convey oxygenated flows to the upper reaches of the former hatchery, was replaced with a buried perforated pipe.

Spring flow monitoring at the Ruby Mountain Springs site began in September 2007, concurrent with the installation of the upper flume at Bighorn Springs. The monitoring network near the springs was expanded in 2009 and 2010, including installation of a flume up-gradient of the springs, RMS Upgradient Flume, (previously known as the Hagen Parshall Flume). Surface flows are calculated from automated stage measurements using the U. S. Bureau of Reclamation (USBR) equations for a Parshall flume and a contracted, sharp-crested, rectangular weir, respectively (USBR, 2001). Spring water discharge, as surface flow, is measured at the down-gradient Ruby Mountain weir, located at the terminus of the former hatchery channel immediately prior to confluence with the Arkansas River. The Upgradient Flume collects flow data in the upper reaches of the Ruby Mountain channel prior to entering the former hatchery area. The down-gradient Ruby Mountain weir, therefore, measures combined flow from the Upgradient Flume and from Ruby Mountain Springs discharges. Historically, the difference between flows at the two stations approximates the discharge from the Ruby Mountain Springs on BTB property. After the completion of a property line adjustment in 2019, the BTB property now includes the property containing the Upgradient Flume. The same method of estimating the Ruby Mountain Springs discharges has been maintained for consistency.

Groundwater levels at Ruby Mountain Springs are measured at monitoring wells BVMW-10, BVMW-11, BVMW-12, BVMW-13, and RMBH-1 and at production boreholes RMBH-2 and RMBH-3. Boreholes RMBH-1 and RMBH-2 were completed in November and December 2007 as test boreholes for the Ruby Mountain Springs. RMBH-1 is used as a monitoring well and RMBH-2 is a production borehole. Monitoring well BVMW-10 is located approximately midway between Bighorn Springs and Ruby Mountain Springs and was completed concurrently with the up-gradient monitoring network in April 2008. Monitoring wells BVMW-11, BVMW-12, and BVMW-13 were completed in August and October 2010 and monitoring began in December 2010. Production borehole RMBH-3 was completed in October 2010.

Datalogger issues have caused some gaps in monitoring at RMBH-2 in the past decade. The in-line sensor datalogger or the electronic recording system associated with RMBH-2 failed during the WannaCry malware attack on May 12, 2017. After several unsuccessful attempts to restore the system, a new datalogger was installed in RMBH-2 on March 16, 2018; however, the datalogger was later lost due to corrosion in the wellhead and data are not available from August 7, 2018, to September 6, 2018, when another datalogger was installed. Additionally, no data is available from December 17, 2019, to February 2, 2020, due to datalogger removal and reinstallation during well rehabilitation efforts.

Reclamation activities that occurred in 2012 have slightly influenced groundwater levels at the springs due to the changes in pressure head from removal of underground piping, redesign of the upper pond, and installation of the perforated pipe where the Upper Ditch previously existed; however, changes are minimal and localized (near BVMW-12 and BVMW-13).

A preliminary aquifer test was conducted for RMBH-2 in late January 2008, and supplemental pumping tests were performed in late April through early May 2008 and in February 2009. An aquifer test was conducted for RMBH-3 in November 2010. Boreholes RMBH-2 and RMBH-3 are hydraulically connected to the Pinedale outwash aquifer and to Ruby Mountain Springs, as was demonstrated by aquifer pumping tests that resulted in temporarily reduced flows from the springs, and a similar chemical fingerprint between the springs and boreholes (ENSR/AECOM, 2008b; Malcolm-Pirnie, 2011).

In June 2014, the Well Use Permit was re-issued by the DWR. Per the DWR Well Use Permit, the combined annual pumping is not to exceed 0.884 acre-feet per day (288,052 gallons per day), or 16.6 acre-feet in any month, or 196 acre-feet per year. Condition 4.29 of the 1041 Permit allows BTB to simultaneously pump RMBH-2 and RMBH-3, and to divert up to a total of 200 gpm from the boreholes. Simultaneous pumping provides a real-time backup in the case of pump failure or other operational disruption. NWNA redeveloped RMBH-2 in December 2019 after being idle for many years and simultaneous pumping was implemented in October 2023.

1.4 Topography

The general physiographic setting of the area and the Trout Creek Watershed located between the Mosquito Range, east of Buena Vista, and the Southwest Front Range (Arkansas Hills), east of Ruby Mountain Springs, is shown on Figure 1.3. The topography is characterized by relatively flat terrain in the valley where the spring sites are located bounded by the rolling tops of the Southwest Front Range Mountains to the east and the massive Sawatch Range to the west. The surface of the alluvial outwash plain slopes southwest 1 to 2 degrees toward the Arkansas River. Near the spring sites, the relief from the top of the alluvium to the Arkansas River is about 50 to 60 feet.

The Trout Creek Watershed is approximately 58.5 square miles (37,409 acres) and is situated in the Southwest Front Range with peaks ranging in elevations between 9,500 to 10,500 feet amsl. The valley at the mouth of Trout Creek is approximately 7,860 feet amsl. Above the valley, and prior to Trout Creek reaching the alluvial plane is the Trout Creek Reservoir at an elevation of approximately 7,970 feet amsl.

The Mosquito Range trends approximately 40 miles north-south from the north end of Park County near Blue River, Colorado, and along the Lake County boundary to east of Buena Vista. The range constitutes the barrier between the Arkansas River headwaters and the South Platte River headwaters. In contrast, the extensive Sawatch Range is generally higher in elevation with several peaks that exceed 14,000 feet amsl and constitutes the continental divide. The range extends approximately 80 miles from near Avon, Colorado to near Saguache, Colorado. The Sawatch forms a divide between the Arkansas River headwaters and tributaries of the Colorado River headwaters.

1.5 Climate

The climate near Buena Vista is semiarid with low humidity and mild temperatures. Precipitation and snowfall are influenced by the bordering mountain ranges; observations indicate moisture is dropped via rain and snow on the western slopes of the valley leaving drier conditions from lack of atmospheric water vapor on the eastern side of the Arkansas River.

Daily precipitation is measured and recorded by BTB at the Ruby Mountain Springs Rain Gauge (RM-PPT) and reported for the Buena Vista 2S (BV2S) National Weather Service Station located at the Chaffee County Regional Airport, approximately seven miles north-northwest of Ruby Mountain Springs (Figure 1.1). The spring site rain gauge was installed in July 2010, and records precipitation rate using a Texas Electronics Series 525 heated tipping bucket rainfall sensor with an accuracy of 1.0 percent. The BV2S station has provided long-term daily and monthly precipitation since August 1, 1899, and represents climate on the western bank of the Arkansas River. The moisture gradient from west to east is reflected in typically higher precipitation totals at BV2S compared to RM-PPT (see Section 2.1 for details).

Long-term average precipitation and temperature at BV2S by month from 1899 to 2023 is provided in Table 1.2 (see Section 2.1.1 for additional details and comparison to 30-year average data). Average temperatures range from 82 degrees Fahrenheit (°F) to 10°F between summer highs and winter lows. Long-term average total precipitation at BV2S is 10.01 inches per year, and average total snow fall is 47.80 inches per year (Colorado Climate Center, Colorado State University, 2023).

Precipitation as snow water equivalent (SWE) is recorded at U.S. Department of Agriculture Natural Resources Conservation Service (NRCS) SNOwpack TELemetry (SNOTEL) stations in the Mosquito range 25 miles to the north (Rough and Tumble site) and Sawatch Mountain Range 20 miles to the west (Saint Elmo site) shown on Figure 1.1. Both SNOTEL stations are approximately 2,500 to 2,900 feet above the elevations of the springs. Neither SNOTEL stations provide a quantitative measure of SWE in the mountains east of the area contributing to Ruby Mountain Springs recharge; however, they show the general relationship between the east and west sides of the valley and observations at Rough and Tumble possibly reflect trends in recharge from snowmelt in the Mosquito Range (Figure 1.4).

1.6 Surface Water

Surface water features are shown on Figure 1.5, including the Arkansas River, Trout Creek, Arnold Gulch, and major diversions near Ruby Mountain Springs. Several smaller canal ditches are operated up-valley from the springs during the irrigation season, but these waterways have not been mapped. River discharge monitoring stations for the Arkansas River are located near Nathrop and at Salida.

1.6.1 Arkansas River

The upper Arkansas River stretches from its alpine headwaters near Leadville, Colorado, to the Great Plains physiographic province near Pueblo, Colorado (Topper et al., 2003). Throughout the mountainous region, the river is primarily gaining along its course from groundwater discharges. Source water originates from precipitation, seasonal snowmelt and runoff, baseflow from discontinuous alluvial aquifers (such as valley fill material near Buena Vista), releases from water storage reservoirs, and trans-basin and trans-mountain diversions[1]. River flows are relatively steady from October through April, then rise sharply in response to

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[1] Water is diverted from the western slope from the Fryingpan River and tributaries of the Roaring Fork River to the Arkansas River basin on the eastern slope. Diversions to the upper Arkansas in 1998 through tunnels and ditches amounted to 144,288-acre feet, or about 15 percent of total discharge in the Arkansas River drainage (CSU, 2002).

snowmelt runoff in May and June. Primary use of the Arkansas River near Buena Vista area is recreational (whitewater rafting and fishing).

The nearest river gauging station, Arkansas River near Nathrop (USGS 07091200), is located approximately 7 miles south of Ruby Mountain Springs (elevation 7,350 feet amsl). The drainage basin above the station is 1,055 square miles. Daily discharge records exist from October 1964 through September 1993; however, since 1993, daily discharge has only been recorded seasonally from April through September. Average monthly flows range from 234 cubic feet per second (cfs) in March to 2,080 cfs in June based on the period of record for continuous measured flows.

The Arkansas River at Salida monitoring station (DWR 07091500) is located approximately 15 miles south of Ruby Mountain Springs. The watershed area is 1,218 square miles and monitoring is measured every fifteen minutes throughout the year since October 1909. Historical average monthly flows range from 255 cfs in March to 2,151 cfs in June. Flows are typically higher at the Salida station compared to the Nathrop gauge, but the discharge pattern is similar from year to year.

1.6.2 Tributaries of the Arkansas River

Approximately 3.5 miles north of the Ruby Mountain Springs, Trout Creek drains the Trout Creek Watershed east of the Arkansas River **(**Figure 1.3**)**. Prior to 2001, Trout Creek ephemerally discharged out across the river terrace alluvium north of the springs. The Trout Creek Dam, which is located downstream of a narrowly incised bedrock valley above the valley floor at the east edge of the alluvial terrace, was completed in 2000, and the impoundment behind the dam was allowed to fill over a 5-month period between January and May 2001. Since the dam was completed, there has been little flow in Trout Creek below the dam. Water that is discharged from the dam, roughly at the break in slope of the valley, is used for local irrigation purposes and a portion of the water infiltrates to recharge the alluvial outwash aquifer.

The Arnold Gulch drainage emerges onto the alluvial valley approximately one mile north of the Ruby Mountain springs and east of Bighorn Springs. Arnold Gulch only flows during and immediately after precipitation events. Several smaller springs have been observed along Arnold Gulch in the foothills and are likely tied to faults or fractures in the crystalline bedrock (ENSR/AECOM, 2008)[2]. These upper springs have not been evaluated for discharge and only one has been sampled for water quality.

1.6.3 Irrigation Diversions

The "Trout Creek Ditch-Cottonwood" provides the most significant surface flow to diversions on the east valley; however, it is sourced from Cottonwood Creek located on the west side of Arkansas River (Figure 1.5). The headwaters of Cottonwood Creek begin at Cottonwood Pass in the Sawatch Range and flow easterly towards the Town of Buena Vista. Water is diverted on the west side of the valley and conveyed across the Arkansas River near a bridge north of Johnson Village, approximately five miles north of Ruby Mountain Springs.

Other significant diversions on the east valley are sourced from either the Arkansas River or from the eastern mountain range. The Helena Ditch and Bray-Allen Ditch are sourced from the river, whereas the Trout Creek Ditch, Cogan Ditch, and Trout Creek Reservoir are sourced from Trout Creek.

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[2] During August 2007, a flash flood event in Arnold Gulch washed out County Road 300 east of Bighorn Springs. Shortly after this event, a new spring vent was observed 500 feet southeast of the Bighorn Springs, in response to apparent changes in groundwater flow patterns.

Ditch waters supply center pivot irrigation operations for landowners on the east valley and the Department of Corrections (DOC). Irrigation activities support haying operations but may also be used to maintain water rights. This is supported by observations during the summers of 2013 and 2014, when overland flooding was observed at the terminus of ditches located upstream of Bighorn Springs in fallow areas.

1.7 Ecological/Biological Setting

1.7.1 Regional Setting

The Natural Resources Conservation Service (NRCS) has classified the Arkansas Headwaters Watershed as a Southern Rocky Mountains – High Mountains and Valleys Common Resource Area (CRA). Landscape conditions, soil, climate, human considerations, and other natural resource information are used to determine the geographical boundaries of the CRA. Very broadly, the temperature regimes are frigid and cryic (mean annual temperature higher than 32°F and less than 46°F); moisture regimes are mainly ustic (moisture is limited but present during the time when conditions are suitable for plant growth). Vegetation is sagebrush-grass at low elevations, and with increasing elevation transitions from coniferous forest to alpine tundra.

Important wildlife species in the area include black bear, elk, mule deer, mountain lion, beaver, and trout throughout most of the watershed; Merriam's wild turkey in the foothills and montane zones; and pronghorn (antelope) in lower elevation shrub and grasslands. A 102-mile reach of the Arkansas River, stretching from Leadville to the Parkdale, Colorado (including the Ruby Mountain and Big Horn spring sites) was identified by Colorado Parks and Wildlife as "Gold Medal Trout Water" in 2014. Gold medal designation[3] indicates that the Arkansas River is an area of exceptional biological productivity.

Wetlands near the Ruby Mountain Springs and Bighorn Springs sites were identified during the Environmental Impacts Analysis Groundwater Investigation (ENSR/AECOM, 2008a) and are generally shown on Figure 1.6. From 2010 through 2019, the Colorado Mountain College (CMC) collected and reported wetland monitoring data annually for the sites in agreement with the SGWMMP. No data is available for the 2020 year due to the COVID-19 outbreak. Since 2022, the wetland monitoring data has been collected and reported by Alpine Ecological Resources, LLC (AlpineEco).

1.7.2 Ruby Mountain Springs Wetlands

Prior to NWNA's purchase of the Ruby Mountain Springs site in 2009, the springs and associated riparian habitat had been developed as a private fish hatchery (date of hatchery development is unknown). The site had been altered with construction of a 100-foot wide and 1,000-foot long terrace, which parallels the Arkansas River, to house trout runs that were initially native clay, sand, and gravel. The hatchery infrastructure was later expanded to include numerous concrete-lined runs, a groundwater piping system, and buildings (CMC, 2015).

Figure 1.7a and Figure 1.7b show the pre- and post-reclamation site maps, respectively. The 2012 reclamation activities included removing the former hatchery infrastructure, enhancing two small ponds, adding geosynthetic clay liners to a connecting channel, and re-vegetating the area with native species. Two small palustrine emergent wetlands covering 0.05 acres were preserved during the construction efforts. Efforts were made to ensure that no net-water-loss

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[3] In order to receive a Gold Medal listing, a river must consistently support a standing stock of trout weighing at least 60 pounds per acre and a minimum average of 12 quality trout (larger than 14 inches) per acre.

through evaporation and transpiration would result from the new features. The ecological reclamation of the Ruby Mountain Springs riparian area has been successful and aquatic plants are proliferating in the restored river channel and pools (CMC, 2016).

1.7.3 Bighorn Springs Wetlands

The Bighorn Springs wetlands were delineated by the U.S. Fish and Wildlife Service (USFWS) in 1985 and ENSR/AECOM in 2008. USFWS delineated three types of wetlands in the project area: Palustrine-Scrub/Shrub-Saturated (PSSB), Palustrine-Emergent-Saturated (PEMB), and Palustrine-Emergent-Seasonally flooded (PEMC). ENSR/AECOM determined there were five different wetland areas that CMC used as the basis for the annual wetland monitoring report: one high quality wetland, one medium quality wetland, and three low quality wetlands. From 2010 to 2019, CMC monitored 8 established vegetation transects, evaluated shallow groundwater level measurements, and provided photo documentation at 6 permanent points annually (CMC, 2019). From 2020 to present, AlpineEco has been performing long-term wetlands monitoring and has expanded the program to 14 wetland transects, 7 upland transects, and 16 photo observation points (Figure 1.8). The scale of the studies is designed to measure changes in wetlands and biological diversity and are sufficient for characterizing impacts from the spring water operations.

1.8 Geology

The Southwest Front Range Mountains and the Mosquito Range are part of the Sawatch Uplift that formed during the Laramide orogeny in the Early Tertiary (approximately 65 million years ago). These mountains were originally contiguous with the Sawatch Range, however a northwest-southeast trending, fault-bounded rift valley that developed about 35 million years ago (during the Oligocene) now separates the two mountain ranges. The Arkansas River occupies this fault-bounded valley until it turns to the southeast just south of Salida.

The upper Arkansas River Basin is in the northernmost structural basin of the Rio Grande Rift (Chapin and Cather, 1994). Uplift of the Sawatch and the Mosquito Ranges formed a graben (a deep structural basin bounded by normal faults), which is referred to as the “upper Arkansas Valley graben” (Scott, 1975), and includes two distinct structural basins: the Buena Vista–Salida and Leadville structural basins (Scott, 1975). The springs are located in the Buena Vista–Salida structural basin, in an area where the surrounding bedrock converges, and the alluvium outwash narrows compared to the upper east valley near Trout Creek (Figure 1.9).

1.8.1 Bedrock

The bedrock exposed along the foothills near the spring sites, including Sugarloaf Mountain, Dorothy’s Butte, and Ruby Mountain, are comprised of the Tertiary (Oligocene) Nathrop Volcanics. These volcanic assemblages consist of tuffs, tuff breccias, vitrophyres and flow-banded rhyolites. Field mapping indicates that the flow banded rhyolite of Sugarloaf Mountain directly east of the Ruby Mountain Springs extends westward across the Arkansas to Dorothy’s Butte and is exposed in the river channel. The rhyolite at Sugarloaf Mountain and Dorothy’s Butte are compositionally similar (Honea, 1955). North of Sugarloaf Mountain the bedrock consists of Precambrian granitic rocks. Locally these are spheroidally weathered and grussified and as such may have a significant component of secondary permeability. It is also likely that zones of enhanced secondary (fracture-induced) permeability occur in association with the many mapped northwest trending faults in the area.

1.8.2 Surficial Geology

As previously mentioned, the springs are located in the unconfined Pinedale outwash aquifer (considered to be of Late Pleistocene age), which is comprised of yellowish-gray crudely stratified alluvium containing well-rounded to sub-rounded boulders, cobbles, pebbles, and sand (Keller et al., 2004). According to current interpretations, the Pinedale outwash was deposited when glacial ice dams in the vicinity of Pine Creek (located about 18 to 19 miles up the valley from Buena Vista) were catastrophically breached on several occasions (Scott, 1975). Deposits across the valley are laterally discontinuous.

Test holes advanced though the alluvium consistently encountered well-graded mixtures of sand and gravel throughout the alluvium (ENSR/AECOM, 2008). Sand fractions were fine-to-coarse grained and gravel size ranged from cobbles to boulders that were several feet across. In general, larger boulders appeared to be present within the upper 20 feet of the alluvium, particularly at the Bighorn Springs site. Spring vents appear to be localized within coarser grained channels contained in the alluvial unit, particularly where the outwash plain narrows along the east side of the Arkansas River.

The Tertiary Dry Union formation is composed of interbedded layers of clay, silt, sand, and gravel (siltstone) with some layers cemented by calcium carbonate (Keller et al., 2004). This surficial unit is inferred to have lower bulk permeability than the Pinedale outwash deposits and likely acts as the western boundary of the alluvial outwash aquifer beyond the Arkansas River.

1.9 Hydrogeology and Water Level Data

1.9.1 Pinedale Outwash Aquifer

The Pinedale alluvial outwash aquifer is characterized as moderately to very permeable and approximately isotropic (i.e., having roughly equal vertical and horizontal hydraulic conductivity) (Watts, 2005). The NWNA test borehole program and inspection of the terrace faces exposed along the river valley between Ruby Mountain and Bighorn Springs revealed consistently coarse grained, unconsolidated, well-graded deposits of sand to gravel and boulders of high bulk permeability.

The test boreholes showed that the Pinedale outwash thickness is on the order of 60 feet beneath the Ruby Mountain Springs site and increases to the north and along the foothills (AECOM, 2008). Monitoring well BHMW-1 (Figure 1.2), constructed northwest of the base of Sugarloaf Mountain, penetrated 72 feet of alluvium without reaching bedrock. A similar range of aquifer thicknesses is inferred to exist between the Bighorn and Ruby Mountain springs. Test borehole BHBH-3, located near Bighorn Springs was drilled in alluvium to 64 feet bgs. Further north, BVMW-6, which is near the Arkansas River, was drilled in alluvium to a depth of 89 feet bgs.

Ruby Mountain Springs monitoring network groundwater level data show that flow in the Pinedale aquifer is generally north to south with discharge into the Arkansas River (SSPA, 2022). The Pinedale outwash aquifer has relatively large seasonal changes in water levels over the entire extent of the aquifer. The timing of highest and lowest water levels, and the amount of fluctuation, are dependent on the location within the aquifer and recharge conditions during the year.

1.9.2 Bedrock Groundwater Flow

The Southwest Front Range Mountains which define the east edge of the Pinedale outwash aquifer and rise to elevations approaching 11,000 feet amsl east of the valley floor, consist primarily of Precambrian crystalline bedrock (intrusive igneous source), with scattered areas of

Tertiary volcanic bedrock outcrops. These rocks have very low porosity except where they are at or near the ground surface and are weathered, and where they are fractured. They are likely saturated at variable depths below the ground surface by recharge from direct precipitation (both rainfall and snowmelt). In drainages incised into the bedrock, the groundwater can be shallow enough to produce spring flow and to support perennial surface water flow.

There is very little monitoring data from the mountains east of Ruby Mountain Springs. USGS well 384907106052600 is located in the east valley approximately 4.5 miles north of Ruby Mountain Springs, 0.25 miles north of US Highway 24/285, and 0.75 miles west of the Arkansas River (Figure 1.10). This well is 140 feet deep and was completed in May 1972 in Precambrian crystalline bedrock that has sufficient weathering and/or fracture porosity to produce usable amounts of groundwater. The USGS has been measuring water levels semi-annually since 1980, typically in the spring (March through May) and fall (September or October); however, nearby pumping at the KOA campground affects ambient water level trends. Groundwater levels at USGS well 384907106052600 over the period of record are shown on Figure 1.11.

1.9.3 Pinedale Outwash Aquifer Recharge

Recharge for the Pinedale aquifer comes from mountain front underflow from the Mosquito Range/Arkansas Hills east of the alluvial aquifer (SSPA, 2010), infiltration of diversion water in irrigation ditches and center pivots, intermittent surface water runoff, infiltration from the Trout Creek watershed[4] and, in rare cases, from direct precipitation (a very small contribution). Discussion of recharge mechanisms and rates are in Section 1.11 below.

1.10 Water Quality and Groundwater Chemistry

The groundwater at the Ruby Mountain Springs and Bighorn Springs sites is of high quality based on the multiple samples collected from the boreholes and springs since March 2007. Samples from the production boreholes (RMBH-2 and RMBH-3) and monitoring well BVMW-10 are collected annually and analyzed for general water quality parameters, physical properties (color, odor, and turbidity), primary and secondary inorganic parameters and metals, volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), pesticides, and bacteria. The analytical results to present from the Ruby Mountain Springs and Bighorn Springs sites meet all applicable U.S. EPA Safe Drinking Water Act (SDWA) standards and Colorado Primary Drinking Water Regulations (5 CCR 1003-1).

Stiff plots of water quality parameters for samples collected from the Ruby Mountain Springs monitoring area in spring, summer and fall, of 2008 and winter of 2009 are shown in Figures 1.12a through Figure 1.12d. Samples were collected from the network groundwater monitoring wells, as well as several surface water locations, including Trout Creek (TC-1) and Cottonwood Ditch (CC-1), the Arkansas River (ARKUP-1 and ARKDN-1), and Arnold Gulch (AG-1 and UAG). The plots show distinct differences in major ion composition of water samples collected on the north and west side of the Pinedale terrace compared to groundwater samples collected near the mountain front, in the mountains (UAG) and at the springs. Surface water and groundwater in and near canals have lower dissolved solids concentrations than the mountain front groundwater and springs samples. Samples from intermediate locations demonstrate varying

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[4] Prior to 2001 when the filling of the Trout Creek impoundment began, Trout Creek flowed onto the Pinedale terrace and recharged the outwash aquifer. In 2001, the former property owners of Ruby Mountain Springs reportedly noticed a significant decline in spring discharges on their property, and noted that flow from some of the springs ceased altogether (Ayres and Associates, 2003). Curtailment in irrigation and below average precipitation probably also contributed to the reduced flows in 2001. By 2004, with the return of closer-to-normal precipitation patterns and stream-flow conditions, water levels within the aquifer recovered, rising to near-pre-2001 levels.

degrees of mixing of the two distinct water types depending on the time of sampling relative to irrigation (AECOM, 2009). For the mountain front and springs groundwater, there is relatively little change in the groundwater composition from season to season.

In 2017, quarterly water quality monitoring was implemented at a piezometer installed near the Bighorn Springs (BHS-1) and at BVMW-10. Quarterly samples have been analyzed for general water quality parameters only (inorganic anions, cations and metals). Results to present have been within the range of historical observations (see Section 2.7 for current water year sampling results and comparison to long-term monitoring observations).

1.11 Conceptual Site Model

An illustration of the physical conceptual site model (CSM) is shown in Figure 1.13. This CSM, which is updated from the CSM originally developed by ENSR/AECOM (2008), is based on a review of published scientific literature, unpublished technical reports, and site-specific data acquired to present, and considers the geomorphology and geology, the hydrogeology, and the climatic characteristics of the region encompassing Ruby Mountain Springs.

1.11.1 Spring Occurrence

As described previously, the Ruby Mountain Springs discharge from the unconsolidated coarse-grained alluvium of the Pinedale outwash aquifer at a relatively flat river terrace plain that extends on the east side of the Arkansas River from north of Johnson Village to immediately south of the springs where it is truncated between the river and the Tertiary volcanic rocks that form the west side of Sugarloaf Mountain[5] (Figure 1.9). The river terrace plain and its unconsolidated alluvial deposits extend west of the Arkansas River both north and south of Ruby Mountain Springs, however, their importance relative to the CSM for the springs area, is diminished because the river, which is a regional groundwater discharge zone, forms a divide that largely separates the groundwater flow characteristics and conditions east of the river from those to the west.

1.11.2 Recharge to Discharge

Hydrogeologically, there are two areas that are key to understanding the springs and their flow conditions: the alluvial Pinedale outwash aquifer and the crystalline bedrock mountains to the east of the alluvial aquifer. The alluvial aquifer is considered to be highly transmissive over the entire area south of Highway 24/285 and has an overall north to south groundwater flow direction. Near the Arkansas River, flow directions become more westerly due to lower elevation of the river. Groundwater discharge from the aquifer occurs all along its boundary with the Arkansas River and, as evidenced by Ruby Mountain Springs, is especially enhanced at the southern terminus of the aquifer where it is truncated by Tertiary volcanic rocks that outcrop immediately to the east and west, as well as in the river bottom.

In contrast to the river terrace plain and the alluvial Pinedale outwash aquifer, the Southwest Front Range Mountains form a significant highland area and consist of crystalline bedrock that is much less transmissive than the unconsolidated alluvial aquifer. Primary flow of groundwater in the mountains is through the near surface weathered portions of the crystalline bedrock and on a larger scale through fractures that occur in the bedrock. The direction of this flow locally is towards the drainages formed by upland streams that are tributary to the Arkansas River and regionally westward towards the Arkansas River valley.

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[5] The Tertiary volcanic rocks are also exposed in the bottom of the Arkansas River bed just north of the springs site and on the butte west of the river (Dorothy's Butte), demonstrating the narrowing of the river channel near the springs.

The location of the mountains and bedrock aquifer relative to Ruby Mountain Springs are important for the following reasons:

1. The intersection of the Tertiary volcanic rocks with the Arkansas River at Ruby Mountain Springs significantly reduces the extent of the Pinedale outwash aquifer both laterally and vertically. Because the Tertiary bedrock is much less permeable than the alluvium, water in the Pinedale aquifer stays consistently at elevations that intersect the east side of the riverbank well above the water level in the river. As a result, there is a significant discharge of groundwater into the Ruby Mountain Springs and the adjacent wetlands.
2. The Southwest Front Range Mountains receive more precipitation than the Arkansas River valley below. This water does not reach the Pinedale terrace as surface water. It is likely that the majority of the eastern mountains precipitation that infiltrates to the underlying bedrock flows towards the Arkansas River and that some proportion of it flows into the Pinedale alluvial aquifer as mountain front recharge. This is consistent with findings from groundwater modeling conducted by SSPA (2010) that strongly suggests that underflow of groundwater from the mountains constitutes a significant portion of the recharge to the Pinedale aquifer.

The geochemical characteristics of the Pinedale aquifer and local surface water provide additional support for the assertion that underflow of mountain groundwater into the alluvial aquifer is significant and important. The geochemical characteristics of Ruby Mountain Springs water is similar to samples from monitoring wells along the east side of the Pinedale outwash aquifer and from an upland spring in Arnold Gulch and does not reflect influence of the surface water that infiltrates into the aquifer from the irrigation ditches and irrigated areas north of the springs (AECOM, 2009). While the fluctuation of groundwater levels in the Pinedale aquifer tends to reflect recharge by irrigation water, the water quality in the Ruby Mountain Springs is consistent and is not affected by the seasonal influxes of the irrigation water into the alluvial aquifer.

In summary, for the CSM, it is the downgradient termination of the Pinedale outwash aquifer east of the Arkansas River and the recharge into the aquifer from underflow from the mountains to the east that create the robust level of spring discharge and the consistency of the geochemistry of the spring water, even with the presence of nearby seasonally variable irrigation. During the history of BTB monitoring, irrigation diversions and groundwater recharge have been relatively consistent.

1.12 Pinedale Aquifer Groundwater Use

According to the Colorado Division of Water Resources Decision Support System (DWR CDSS) database, there are 28 permitted wells located within the alluvial outwash aquifer east of the Arkansas River and up-gradient of the springs (wells located in alluvium west of the river are hydraulically isolated from the aquifer east of the river); however, the accuracy of location data is questionable for many of the wells[6]. Figure 1.10 shows locations of other wells in the Pinedale aquifer and Table 1.3 provides information from the CDSS database. Wells shown near the Arnold Gulch watershed are questionable locations and have not been visually observed during field investigations. The closest known upgradient well with potential impacts to Ruby Mountain Springs is a stock well (Permit Number 243937) located southeast of the central irrigation pivot in the valley (approximately 2.8 miles north-northwest of the production boreholes). This well may be used to supplement surface water irrigation; however, it is unlikely that withdrawals from the

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[6] This does not include 20 wells that have been permitted and that are reportedly located in the small portion of the alluvial aquifer that exists north of Highway 24.

aquifer are used for large-scale agricultural irrigation. All other wells are designated for domestic or household use, except for the Buena Vista Sanitation District well located adjacent to the river.

Section 2
2023 Water Year and Long-Term Monitoring Data

Observations and details for the 2023 water year (constituting November 1, 2022, to October 31, 2023) for the Ruby Mountain Springs monitoring network are provided in this Section.

2.1 Precipitation and Mountain Front Recharge

2.1.1 Precipitation

Precipitation is measured at the Buena Vista National Weather Service Station (BV2S) and the Ruby Mountain Rain Gauge (RM-PPT) (described in Section 1.5). Table 2.1 lists measured precipitation in the 2023 water year compared to historical[7] or long-term average data, and Figure 2a shows monthly measured precipitation compared to normal. No data is available for the RM-PPT gauge from March 2, 2023, through July 10, 2023 due to datalogger recording errors.

Figure 2.1a shows historical monthly averages from the BV2S (west of the Arkansas River) and RM-PPT (east of the Arkansas River) gauges compared to the 2023 water year. Historical observations indicate moisture is dropped via rain and snow on the western slopes of the valley leaving drier conditions from a lack of precipitation on the eastern side of the Arkansas River for most of the year except during the late summer months when precipitation is typically higher on the eastern valley due to a more influential southerly monsoonal flow. During the 2023 water year this weather pattern was observed in July and September. On the west bank, precipitation for the 2023 water year at BV2S was below average for the winter and spring months (November 2022 through April 2023), and above average for most of the late spring to fall months (May through October except July 2023). Similarly, on the east bank, available precipitation records for the 2023 water year at RM-PPT were below average at the beginning of the water year and above average at the end of the water year.

Period of record monthly precipitation measurements from January 2008 through October 2023 are shown in Figure 2.1b. For comparison purposes, the long-term monthly 30-year average precipitation (based on 1991-2020[8] observations) at BV2S and the deviation from normal precipitation for the period of record (the "cumulative departure") are shown. A total of 10.94 inches of precipitation were recorded at BV2S in the 2023 water year, which is 10 percent (0.99 inches) greater than the 30-year long-term average (9.95 inches). The cumulative departure from normal conditions at BV2S since 2008 remains below normal.

2.1.2 SNOTEL Stations

Potential recharge from snowmelt is approximated from the SWE measured at the two nearest SNOTEL stations, Rough and Tumble and Saint Elmo (described in Section 1.5). Figure 2.2a and Figure 2.2b show measured SWE for the 2023 water year compared to the 2007 to 2022 water years at Rough and Tumble and Saint Elmo SNOTEL stations, respectively.

Winter precipitation in the Sawatch Range to the west is typically higher than in the Mosquito Range to the east. For the winter of 2022/2023, measured SWE was higher in magnitude at the Saint Elmo station (western mountains shown in Figure 2.2b) compared to Rough and Tumble (eastern mountains shown in Figure 2.2a). The maximum SWE observed during the 2023

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[7] Available RM-PPT measurements over the period of record from April 2010 to present have been averaged to estimate a long-term average.

[8] The 2021 and earlier annual reports compared the observed measurements to the 1981 to 2010 long-term average, which was 10.58 inches, compared to 9.95 inches for the 30-year period between 1991 and 2020.

water year at Rough and Tumble was 4.6 inches on April 30, which is below average snowpack and average timing compared to long term observations (7.7 inches on April 26). The maximum SWE measured at Saint Elmo in 2022 was 13.1 inches on April 7. Long-term observations for the Saint Elmo station are not available since reporting began on September 10, 2007; however, based on the available 16 seasons of data, the median peak SWE for Saint Elmo is 11.5 inches occurring in early April, indicating the Sawatch Range snowpack may be above average and the timing of peak accumulation was average. In comparison to the previous 16 years, the duration of snowpack persistence in the 2023 water year was approximately 2 percent and 1 percent shorter at Rough and Tumble and at Saint Elmo, respectively.

2.2 Arkansas River Flow

Hydrographs of average daily flows in the upper Arkansas River for the 2023 water year and long-term average flow data collected from the Arkansas River gauges near Nathrop and at Salida are shown on Figure 2.3. Flows at the Nathrop and Salida gauges vary from year to year but are partially controlled by the operation of reservoirs on streams that are tributary to the river and upstream of the Ruby Mountain Springs site. Daily average observed and long-term normal flows for these gauges during the 2023 water year are provided in Appendix A.

Observations for the year compared to the long-term average indicate the Arkansas River flow was average during the 2023 water year. Flows for the month of June (when peak flows historically are at their highest) were 10 percent higher than normal at the Nathrop gauge and 5 percent higher than normal at the Salida gauge. For the 2023 seasonal gaging period (April through September), total flows for Nathrop and Salida were approximately 349,000 and 342,000acre-feet, respectively, which is 102% and 98% of normal seasonal flows.

2.3 Irrigation Diversions

Annual diversions for Trout Creek Ditch sourced from Cottonwood Creek (Trout Creek Ditch-Cottonwood), Trout Creek Ditch sourced from Trout Creek (Trout Creek Ditch), Bray-Allen Ditch, Helena Ditch, Cogan Ditch, and Trout Creek Reservoir are reported by the DWR. Diversion records are typically made available for this report by the Chaffee County Water Commissioner. Data has been posted on the DWR website for some structures in 2022 and 2023, but according to correspondence from DWR, this data is still being reviewed for errors and consistency.

Monthly diversions for the current irrigation season are normally included in Table 2.2a, and a summary of total diversions for each water year, from 2008 through 2023, is shown in Table 2.2b[9]. Table 2.2a currently has placeholder data until 2023 data becomes available. The approximate locations of canals near the monitoring network (high accuracy location data for canals are not available at this time) are shown on Figure 1.5. Combined total monthly diversions for 2008 through 2023 are shown on Figure 2.4[10] reflecting the timing and magnitude of ditch flows in the valley.

The timing and magnitude of diversion flows during the 2023 water year will be compared to previous years when the diversion data are published. Historical average diversions for available years from the Bray-Allen ditch since 1946 are approximately 1,400 acre-feet. Historical average diversion for available years from the Trout Creek Ditch since 1911 is approximately 580 acre-

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[9] The 2022 and 2023 monthly and water year totals will be updated when the diversion data are available from the DWR and/or the district water commissioner.

feet. Cogan Ditch is operated under a futile call. Flows from the Trout Creek Reservoir are negligible (Trout Creek Reservoir accounts for less than 1% of the annual diversion total[10]).

2.4 Drought Conditions

The U.S. Drought Monitor (USDM) was established in 1999 as a joint venture by the National Oceanic and Atmospheric Administration, the U.S. Department of Agriculture, and the National Drought Mitigation Center (NDMC) at the University of Nebraska-Lincoln. The USDM produces weekly drought maps of the entire U.S. based on measurements of climatic, hydrologic and soil conditions as well as reported impacts and observations from more than 350 contributors around the country.

Quarterly USDM maps were compiled for the region surrounding the Trout Creek Watershed and Ruby Mountain and Bighorn Springs (Figures 2.5a, 2.5b, 2.5c, and 2.5d). The NDMC datasets indicate no drought impact at the springs but “abnormally dry” (classification D0) conditions in the Mosquito Range to the east in the first quarter, “abnormally dry” (classification D0) conditions in the second quarter, and no drought impacts in the third and fourth quarters of 2023.

Figure 2.6 shows statewide drought conditions for the end of August from 2016 to 2023. Conditions during late summer in the years 2016, 2017 and 2019 showed no drought impacts. During late summer in 2018, the Ruby Mountain Springs site was in an extremely dry (D3) zone and 2020 had a severely dry (D2) summer. Since 2021 the springs have been on the border of no drought to abnormally dry (D0) zones during summers.

2.5 Springs Discharge

Surface water monitoring at both the Ruby Mountain Springs and Bighorn Springs is monitored by two spring flow measurement stations at each site (see Sections 1.3.2 and 1.3.3). Some of the surface-water monitoring data associated with the gauges showed anomalous measurements during periods of the 2023 water year. Challenges arose from the need to maintain the integrity of monitoring structures on a continual basis, most commonly by clearing tumbleweeds, aquatic plants, and incipient animal activity (e.g., beaver dams) from the measurement structures and associated channels.

2.5.1 Ruby Mountain Springs Discharge

Spring discharge is estimated by flow at the Ruby Mountain Weir less the up-gradient channel flow at the Ruby Mountain Upgradient Flume (previously known as the Hagen Parshall Flume). Table 2.3a shows monthly measured flows for the springs for the 2023 water year, and average daily flow measurements for the 2023 water year are included in Appendix B. Figure 2.7 shows historical Ruby Mountain weir and Upgradient flume flows after reclamation was completed in 2012, the 2023 water year average daily measured flows, precipitation at BV2S, and total daily pumping withdrawals.

There were several short periods during the 2023 water year when weir data were not representative of actual springs discharge conditions due to debris and clogging in the flow stations. Naturally occurring debris and algae were removed along the conveyance system and from the weir periodically throughout the year. The channel was continually monitored and has been temporarily repaired until a long-term solution can be resolved. BTB is reviewing alternative

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[10] No data for the Trout Creek Reservoir is available since 2009 from the Colorado Department of Natural Resources, Water Conservation Board, Colorado’s Decision Support Systems; however, according to the water commissioner, the reservoir remained full and spilling all year.

methods for monitoring spring flow due to the challenges posed by the continuous changes in the channel due to vegetation and wildlife (beaver dams). Flows more reflective of natural conditions during these periods, as summarized in Table 2.3a and shown in Figure 2.7, were estimated based on visual observations.

Additionally, based on review of historical data compared to 2023 flows at the upgradient flume and on field observations in October 2023, flow bypass has been occurring above the upgradient flume and conveyance channel water is discharging directly to the Arkansas River instead of being measured at the flume. BTB plans to maintain the channel in spring/summer 2024. As a result of the flow bypass, the downstream weir showed above average flow during much of 2023, while the upgradient flume showed below average flow (see Figure 2.7).

Seasonal flow through the Upgradient flume ceased on March 15, 2023, and began again on July 20, 2023, typical for the seasonal pattern. Flows through the flume were affected by occasional debris blockages and ponding interference.

The average monthly discharges from Ruby Mountain Springs (weir flows minus Upgradient flume flows) during water year 2023 are shown on Table 2.3a. Total springs discharge varied from a high of 4.7 cfs (280 acre-feet) in October 2023 to a low of 1.08 cfs (67 acre-feet) in May 2023. Seasonal trends were similar to those observed in previous years.

For comparison, total discharge from the springs for the previous water years of record are shown on Table 2.3b and shown in Figure 2.7. The total spring surface water discharge was above average and estimated discharge was 1,970 acre-feet for the 2023 water year, which is 125 percent of the median total discharge for the previous 15 years of record (1,573 acre-feet). Springs discharge was lowest in the 2021 water year (1,106 acre-feet) and highest in the 2016 water year (2,720 acre-feet).

2.5.2 Bighorn Springs Discharge

Figure 2.8 shows historical Bighorn Parshall Flumes BHPF-1 and BHPF-3 flows from 2011 through the 2023 water year and daily precipitation records for the 2023 water year. Observed monthly and annual measurements are shown in Table 2.4a, and average daily flow measurements are included in Appendix C. Based on measured flows, the total gain in spring flows between BHPF-1 and BHPF-3 was 0.32 cfs (229 acre-feet) for the 2023 water year. The seasonal trends are similar to those observed in previous years. Total springs discharge, represented by BHPF-3, was lowest in 2013 and highest in the 2016 water year (Table 2.4b).

Measured flows at the upper flume (BHPF-1) and the lower flume (BHPF-3) were occasionally obstructed due to the buildup of vegetation and debris in and around the flumes. There remains an intermittent flow circumventing BHPF-3 and actual flows are likely greater than measured throughout the 2023 water year. During high flow conditions, water was observed bypassing the flume; however, it is difficult to visually observe the bypass during low flow conditions. Vegetation is cleared during routine maintenance visits, but debris and sediment buildup continues to be challenging. Options for maintaining, modifying, or removing these flumes are being evaluated.

2.6 Groundwater Monitoring

2.6.1 Up-gradient Monitoring

Hydrographs for the SGWMMP required up-gradient monitoring wells from 2008 to present (Figure 2.9) show that the Pinedale outwash aquifer has relatively large seasonal changes in water levels over the entire extent of the aquifer. The lowest levels were observed April through

June and highest water levels were observed August through October. The actual timing of highest and lowest water levels, and the amount of fluctuation between the highest and lowest levels, are dependent on the location within the aquifer and recharge conditions during the year.

The variability in water level fluctuations for up-gradient, Bighorn Springs, and Ruby Mountain Springs monitoring wells for the 2023 water year is illustrated in Figure 2.10, which provides a map view illustration of the magnitude of the groundwater fluctuations within the aquifer during the water year. Of the up-gradient wells required to be monitored by the SGWMMP, annual water levels fluctuated from 10 feet to 28 feet. As in previous years, the magnitude of fluctuations was higher in wells near irrigation ditches and center pivots (e.g., BVMW-5). These wells typically show relatively rapid and significantly large responses to periods of active irrigation. Additionally, fluctuations are typically slightly higher on the eastern side of the valley and lower near the groundwater discharge points (i.e., the Arkansas River to the west or the Ruby Mountain and Bighorn Springs to the south).

During the 2023 water year, peak seasonal water levels in up-gradient wells were average compared to all previous water years of record, and increased by an average of 1.8 feet in 2023 compared to 2022. Minimum water levels in up-gradient wells increased slightly by an average of 0.49 feet from 2022 to 2023 and the timing of lowest water levels were within the range of previous year's records. Generally, minimum groundwater levels have slightly declined since monitoring began in 2008; however, there have been periods of water level increases throughout the monitoring network (e.g., 2014 to 2016 and 2021 to 2023) during times of production operation that began with regularity in July 2010. The trends in water levels are independent of pumping at Ruby Mountain Springs.

Groundwater flow in the aquifer throughout the 2023 water year was north to south and southwest with discharge to the west into the Arkansas River. These flow directions are consistent with previous years (SSPA, 2023). Figure 2.11 is a map of water level contours for the aquifer during the low seasonal groundwater levels on April 4, 2023. High seasonal groundwater levels are depicted in Figure 2.12 showing conditions on October 18, 2023. Average daily water levels, temperature, and conductivity for up-gradient wells for the 2023 water year are provided in Appendix D.

2.6.2 Ruby Mountain Springs and Bighorn Springs Monitoring

Hydrographs for the Ruby Mountain Springs and Bighorn Springs groundwater monitoring stations that are required by the SWGMMP are shown in Figure 2.13. The hydrographs are overlain with pumping from the production boreholes RMBH-3 and RMBH-2 combined to illustrate any relationships between pumping and water level changes in the wells. Seasonal changes in groundwater levels in monitoring wells located near springs (e.g., RMBH-1 and BHBH-2) typically fluctuate less than groundwater levels in monitoring wells located away from the springs (e.g., BVMW-10 and BHMW-1). Similar to up-gradient monitoring wells, seasonal peak groundwater level trends at wells near Ruby Mountain and Bighorn springs have declined overall except for some periods of rebound (e.g., 2013 to 2016 and 2020 to present). Compared to 2022 groundwater levels at monitoring wells near the springs sites, minimum levels increased by an average of 0.33 feet and maximum levels increased by an average of 0.06 feet in 2023.

A declining trend in groundwater levels that began prior to NWNA's production was present for the years 2008 to 2010. In 2011, this trend was reversed with a majority of the water levels within the monitoring network exceeding observed water levels in the previous water years. The effects of regional drought conditions during water year 2012 were apparent in the low maximum and minimum water levels measured in all wells. After water year 2013 (a year of near average precipitation) seasonal low groundwater levels at the springs showed an increasing trend until 2016 when the trend reversed and groundwater levels continued to decrease through 2018. The increased maximum water levels in the 2019 water year were sharply reversed in the 2020 water year, aligned with increasingly dry conditions late summer into fall and reduced irrigation diversions. A rebound was observed in the maximum levels late in the 2021 water year and continued into the 2022 and 2023 water years.

Figure 2.14 details groundwater levels at Ruby Mountain Springs for the 2023 water year and shows the relationship and minimal changes in water levels associated with production withdrawals. Average daily groundwater water levels at nearby monitoring wells exhibit limited effects during pumping at the production boreholes.

In addition to water level and temperature measurements, specific conductance is recorded in boreholes RMBH-2 and RMBH-3, and monitoring wells BHBH-2, BHMW-1, and BVMW-10. Average daily water levels, temperature, and conductivity for springs site wells for the 2023 water year are provided in Appendix D.

2.7 Groundwater Quality

BTB performs annual water quality sampling for the production wells and BVMW-10 during the same seasonal period from year to year that are analyzed for the full suite of parameters listed in Section 1.10. Water quality samples were collected on June 13, 2023, at RMBH-2 and RMBH-3, and on July 11, 2023, at BVMW-10. EPA approved methods were used in the analyses of samples from the production wells. All sample results are presented in Appendix E.

For the samples collected in 2023, the pH for RMBH-2, RMBH-3 and BVMW-10 was 8.1, 8.1, and 8.2, respectively, and specific conductance was 390 µohm/cm, 370 µohm/cm and 330 µohm/cm, respectively. Total Dissolved Solids (TDS) was 230 mg/L for RMBH-2, 230 mg/L for RMBH-3, and 200 mg/L for BVMW-10. All primary and secondary inorganic parameters and metals concentrations in the production borehole and BVMW-10 were below Colorado Basic Standards for Ground Water (5 CCR 1002-41). There were no reported SVOCs or pesticides/herbicides in any of the samples. There were no detections of VOCs from the production boreholes; however, there was a low detection of dichloromethane in the monitoring well BVMW-10 that is suspected to be a laboratory error. Well BVMW-10 was resampled for EPA Method 524.4 for drinking water on October 18, 2023, and results confirmed no detections of VOCs in groundwater. During the 2023 water year, water quality parameters were within the range of historical observations and were below the federal Maximum Contaminant Levels (MCLs).

2.8 Evapotranspiration

The Colorado Climate Center[11] maintains a CoAgMet Station that measures evapotranspiration (ET). The station is located southwest of Buena Vista between the town and the BV2S Weather Station at 7,900 feet amsl (Figure 1.1). The station has recorded hourly observations since October 12, 2010. The reference ET value provided in CoAgMet outputs are computed using the 1982 Kimberly-Penman equation. Reference ET values are for conditions where soil moisture is not limiting (greater than 50% capacity). If moisture does become limiting, a soil coefficient value can be applied.

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[11] The station is operated in cooperation with the Upper Arkansas Water Conservancy District, the Colorado Division of Wildlife, Southeastern Colorado Water Conservancy District, and the Board of Water Works Pueblo.

For the 2023 water year, the average daily Reference ET was 0.15 inches (and similarly, 0.15 inches for the 2023 calendar year) and the total annual Reference ET was 53.50 inches (slightly lower than 53.57 inches for the 2023 calendar year) (CSU, 2023). ET in the Buena Vista and Ruby Mountain Springs area is limited by lack of precipitation, which is approximately 10 inches per year, and the dry conditions in the valley likely affect soil moisture such that a much lower ET is realized.

2.9 Ecological/Biological Monitoring

Annual wetlands monitoring results for the Ruby Mountain Springs and Bighorn Springs sites are detailed in the *Bighorn Springs State Wildlife Area, 2023 Monitoring Report* prepared by AlpineEco and provided as an Exhibit to BTB's *2023 Annual 1041 Permit Report* (BTB, 2024).

2.10 Production

A summary of total monthly and annual production withdrawals for the 2023 water year are shown on Table 2.5. Figure 2.15 exhibits total daily pumping from each production borehole for the 2023 water year. Total daily withdrawals in acre-feet for RMBH-2 and RMBH-3 are provided in Appendix F.

For the 2023 water year, a total of 93.44 acre-feet of water was pumped from both production boreholes. For November 2022 through September 2023, RMBH-3 was the primary production source and RMBH-2 was pumped approximately weekly for sampling. Starting in October 2023, RMBH-2 was brought online and both production boreholes were pumped simultaneously. Total pumping for the 2023 water year from RMBH-3 was 90.53 acre-feet and from RMBH-2 was 2.91 acre-feet. The maximum pumping rate from the production boreholes occurred during a silt density index (SDI) test on September 21, 2023, at a rate of 201.4 gpm. This was a special test involving high volumes of water flushed from the well. Total pumping for that day was only 76,600 gallons, which averages 53 gpm, reflecting that the high rate of flushing was brief and incidental. The highest pumping rate for the 2023 water year during normal operations was 173.4 gpm on December 13, 2022, which is below the permit limit of 200 gpm. The maximum daily withdrawal for RMBH-2 and RMBH-3 combined occurred on August 18, 2023, at a total of 214,100 gallons per day (gpd), which is below the permitted limit of 288,000 gpd. The average daily withdrawal for RMBH-2 and RMBH-3 combined over the 2023 water year was 83,419 gpd (57.93 gpm) and the average daily maximum pumping rate was 132 gpm. The daily, monthly, and annual production withdrawals are well below the limits established in the Well Use Permit.

2.11 Summary of 2023 Monitoring Network Observations

For the 2023 water year, BTB conducted surface water, groundwater, flow monitoring, and other activities specified in Chaffee County Resolution 2021-58 and the SGWMMP. During the year, BTB responded to changing conditions (e.g., blockages of the flumes and weir) and sporadic problems that occurred with dataloggers in the monitoring network. As of the end of 2023, conditions at the surface water measurement stations were being field-checked on a frequent basis, all dataloggers were functioning correctly, and monitoring data were acquired according to SGWMMP requirements.

Seasonal surface water flows from both Ruby Mountain and Bighorn springs are generally at a minimum from April through June and at a maximum from September through December (Figure 2.7 and Figure 2.8, respectively). Compared to available historical observations, flows at the Ruby Mountain weir were above average for the first quarter of the 2023 water year (November 2022 through mid-January 2023), average during the second and third quarters (mid-January to mid-July) and above average for the fourth quarter (through October 2023). Observations at the Ruby Mountain Springs upper flume indicate the conveyance channel is diverting to the river upgradient of the flow monitoring station, which is planned for maintenance in summer 2024 to maintain consistency with prior years of monitoring data. The pattern of flow at the upper flume typically is similar to the lower weir; however, due to incomplete capture of the channel flow, the flow is below average for most of the high water season. Similarly, surface flows at the Bighorn springs flumes are difficult to interpret because of incomplete capture at the lower gauge due to upstream bypass and scouring of the inlet walls; however, Bighorn springs flows were within the range of previous seasonal observations.

The timing and magnitude of maximum and minimum groundwater levels in the Ruby Mountain Springs monitoring system were generally similar to spring surface flow observations (Figure 2.9 and Figure 2.13). Minimum water levels slightly increased in the 2023 seasonal observations compared to the previous water year, and similarly, peak levels continued to increase from the previous two water years. Wells located further up-gradient reached maximum and minimum levels earlier than wells located down gradient. The smallest seasonal variations in groundwater water levels occurred in the wells closest to groundwater discharge points (e.g., BVMW-12 and BVMW-13), as shown in Figure 2.10.

The correlation between irrigation and groundwater levels has been noted previously for the Pinedale Outwash aquifer (ENSR/AECOM, 2008), and review of previous years timing of irrigation diversions with the timing and magnitude of water level increases, confirms this relationship. In prior years, seepage from irrigation diversions influenced groundwater levels in wells located near canals and center pivots as demonstrated in Figure 2.9 (e.g., BVMW-5). Irrigation diversions for the 2022 and 2023 water year (Figure 2.4 and Table 2.2b) will be characterized and compared to previous years when 2022 and 2023 diversion data are published.

Total precipitation for the 2023 water year at the BV2S weather station was 10-percent above the long-term average (Table 2.1). Precipitation west of the Arkansas River was below average the first half of the water year (November through April), above average in the spring (May and June), below average in July, and above average for the remainder of the water year (August through October). On the east bank of the river at the Ruby Mountain Springs site, available precipitation records for the 2023 water year are similar to observations at BV2S, with September being an exceptionally wet monsoon pattern. As in the past, the effect of local precipitation in the Arkansas River Valley on the aquifer appears to be minimal.

Aquifer recharge via groundwater inflows from the mountains directly east of the Pinedale Outwash aquifer is significant (ENSR/AECOM, 2008). The closest SNOTEL precipitation monitoring station east of the Arkansas River is the Rough and Tumble station, which is located more than 20 miles north of Ruby Mountain and Bighorn Springs. From a general perspective, the station shows that the peak SWE for the 2022/2023 snowpack in the Mosquito Range was below average compared to the 30-year median (4.6 inches compared to 7.7 inches), and snowpack persistence was average duration (214 days compared to 212 days). Weather patterns appear to be typical such that more precipitation fell on the Sawatch Range than on the Mosquito Range to the east (Figure 2.2a and 2.2b).

RMBH-2 and RMBH-3 are hydraulically connected to the Pinedale outwash aquifer and to Ruby Mountain Springs, as was demonstrated by the aquifer pumping test that resulted in reduced flows from the springs (ENSR/AECOM, 2008; Malcolm-Pirnie, 2011). The sole source of withdrawals for the production of water was from Ruby Mountain Springs borehole RMBH-3 from November 2022 through September 2023 and during that time, borehole RMBH-2 was pumped minimally for testing and maintenance purposes only. In October 2023, RMBH-2 was brought online for production and both boreholes are operating simultaneously in accordance with the terms of the Permit. Daily, monthly, and annual production withdrawals for the 2023 water year are well below the limits established in the Well Use Permit (Figure 2.15 and Table 2.5).

Slight increases in flows from Ruby Mountain Springs coincident with cessation of withdrawals from the production boreholes can be seen on Figure 2.16, although effects are small. As in prior years, comparison of periods of pumping with surface flow levels at the Ruby Mountain Weir (downgradient of the pumping wells) and the Bighorn Springs Flume (located approximately 3,000 feet northwest of the production boreholes) show small effects at the weir and no effects from pumping at the Bighorn Springs Flume during the 2023 water year.

Figure 2.17 shows groundwater levels at the production boreholes and nearby monitoring well RMBH-1 compared to pumping and recharge from precipitation and SWE. Similarly, Figure 2.18 shows precipitation versus total daily production, and RMBH-2 and RMBH-3 water levels since the beginning of 2013. Important observations from the 2023 measurements of precipitation and SWE, groundwater levels, and water production data are that 1) changes due to precipitation are minimal, if observed at all, and 2) effects from pumping are minimally observed at nearby well RMBH-1 but are not observed at other up-gradient wells. Data has been posted on the DWR website for some structures in 2022 and 2023, but according to correspondence from DWR, this data is still being reviewed for errors and consistency. However, observations from prior years show that the seasonal groundwater level fluctuations, while having an apparent relationship to SWE and snowmelt/runoff, are largely influenced by seasonal irrigation diversions. While the fluctuation of groundwater levels in the Pinedale aquifer tends to reflect recharge by irrigation water, the water quality in the Ruby Mountain Springs is consistent and is not affected by the seasonal influxes of the irrigation water into the alluvial aquifer. It is the downgradient termination of the Pinedale Outwash Aquifer east of the Arkansas River and the recharge into the aquifer from underflow from the mountains to the east that create the robust level of spring discharge and the consistency of the geochemistry of the spring water. During the history of BTB monitoring, and similarly for the 2023 water year, spring flow and spring water quality have been relatively consistent, and observations demonstrate a sustainable water resource as defined by BTB and in compliance with its Permit.

Section 3
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Figures

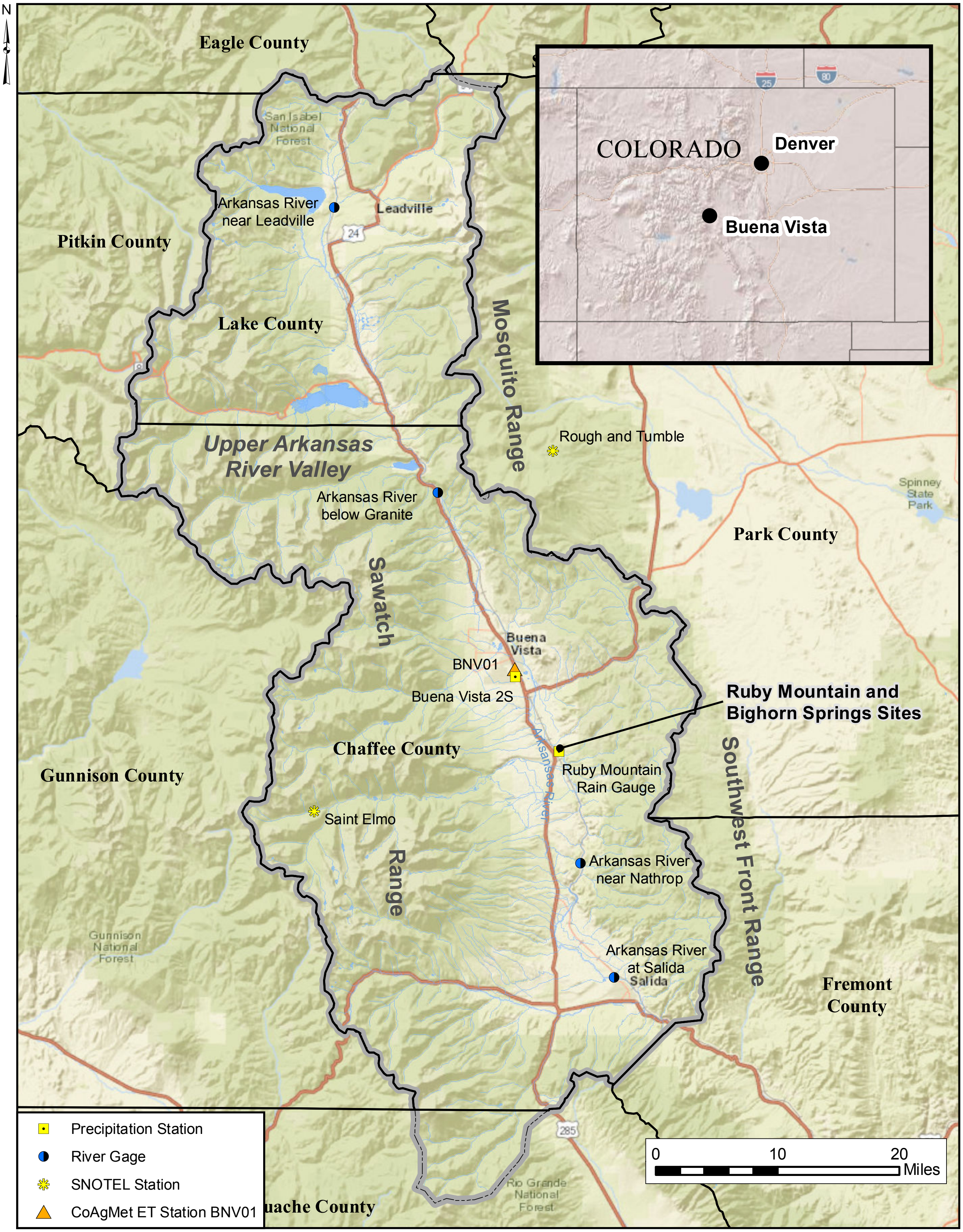


Figure 1.1 Project Location within the Upper Arkansas River Valley and Other Monitoring Stations

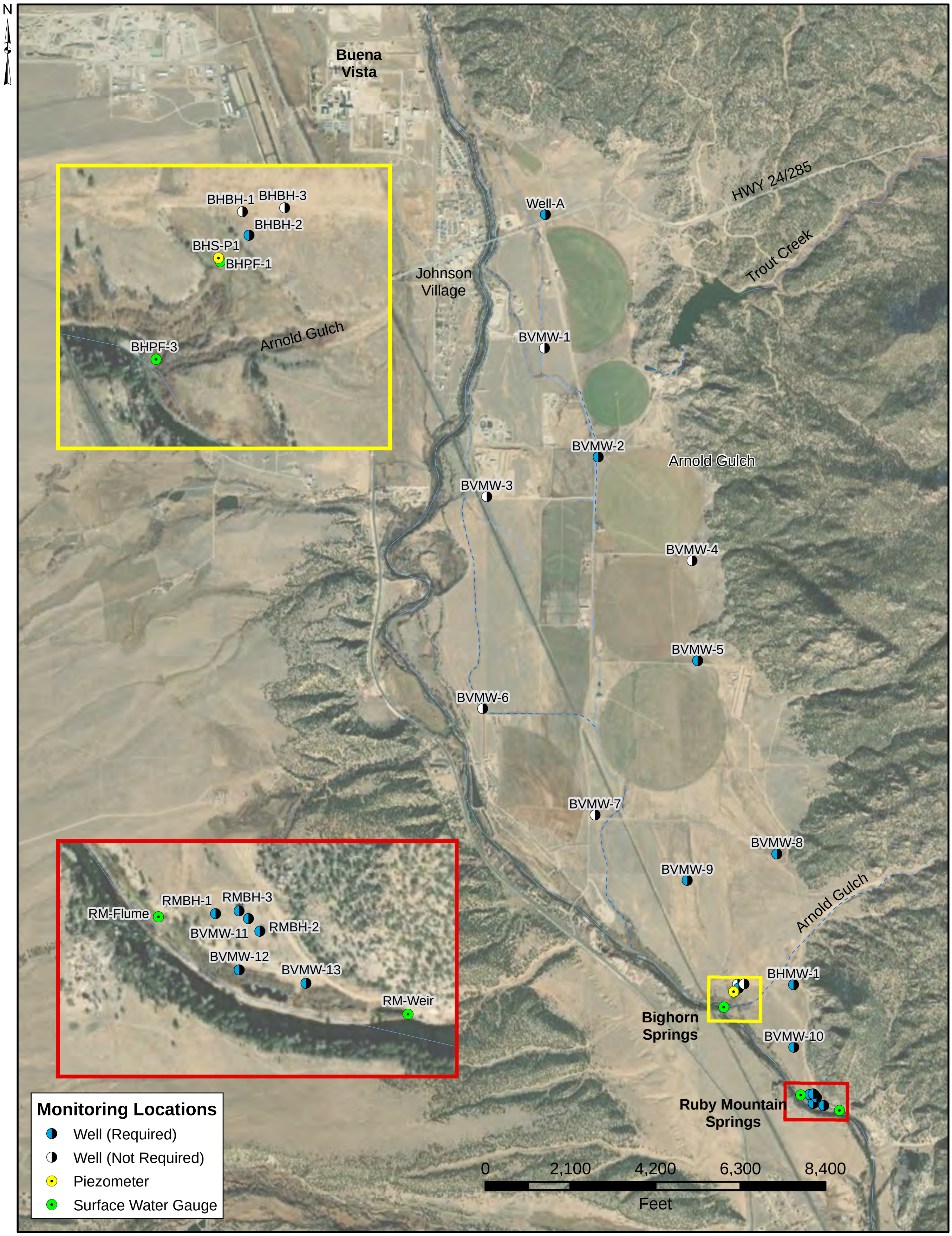


Figure 1.2 Monitoring Locations in the Ruby Mountain Springs Network

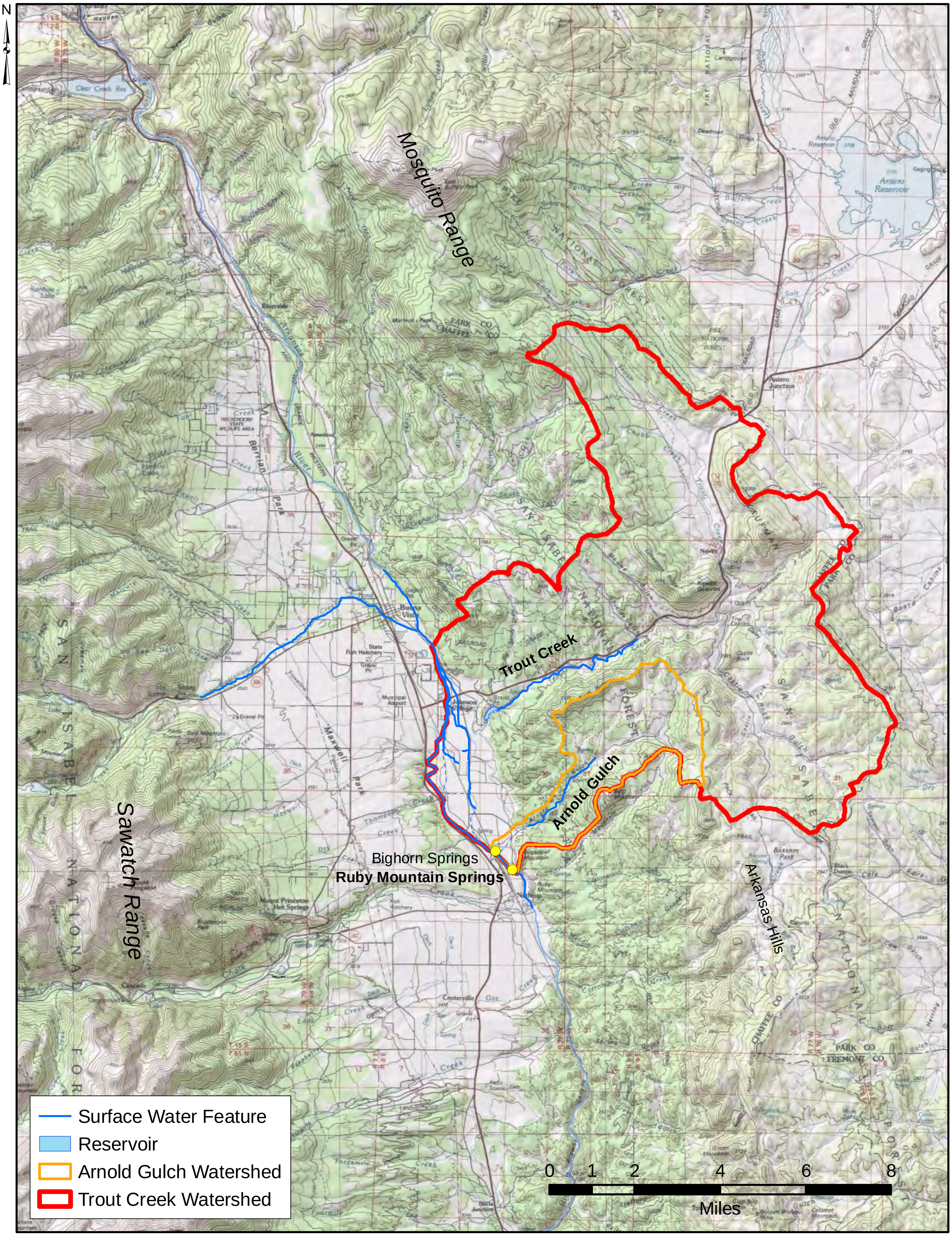


Figure 1.3 Physiography of the Area

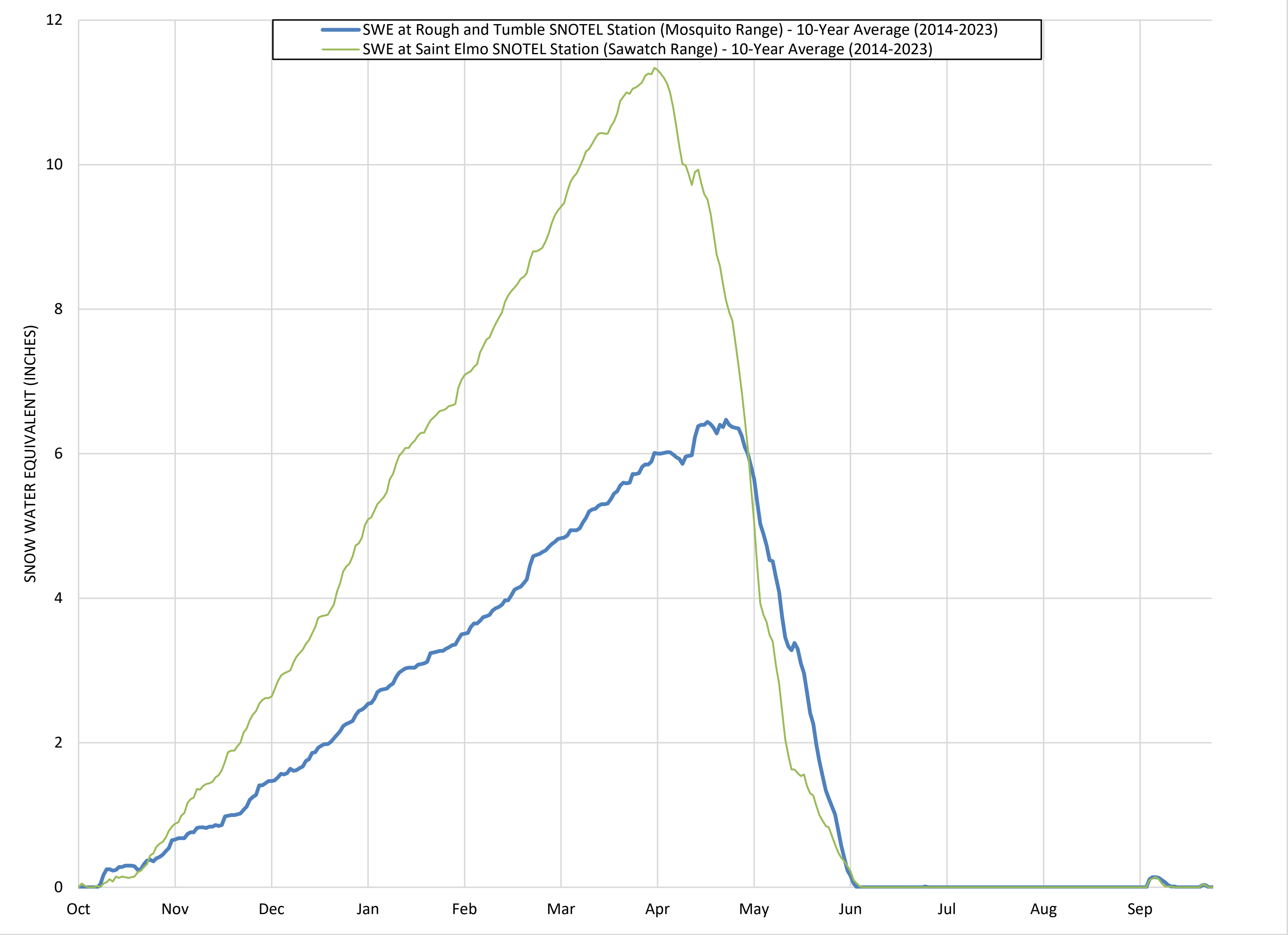


Figure 1.4. Average SNOTEL Snow Water Equivalent (SWE) near Ruby Mountain Springs

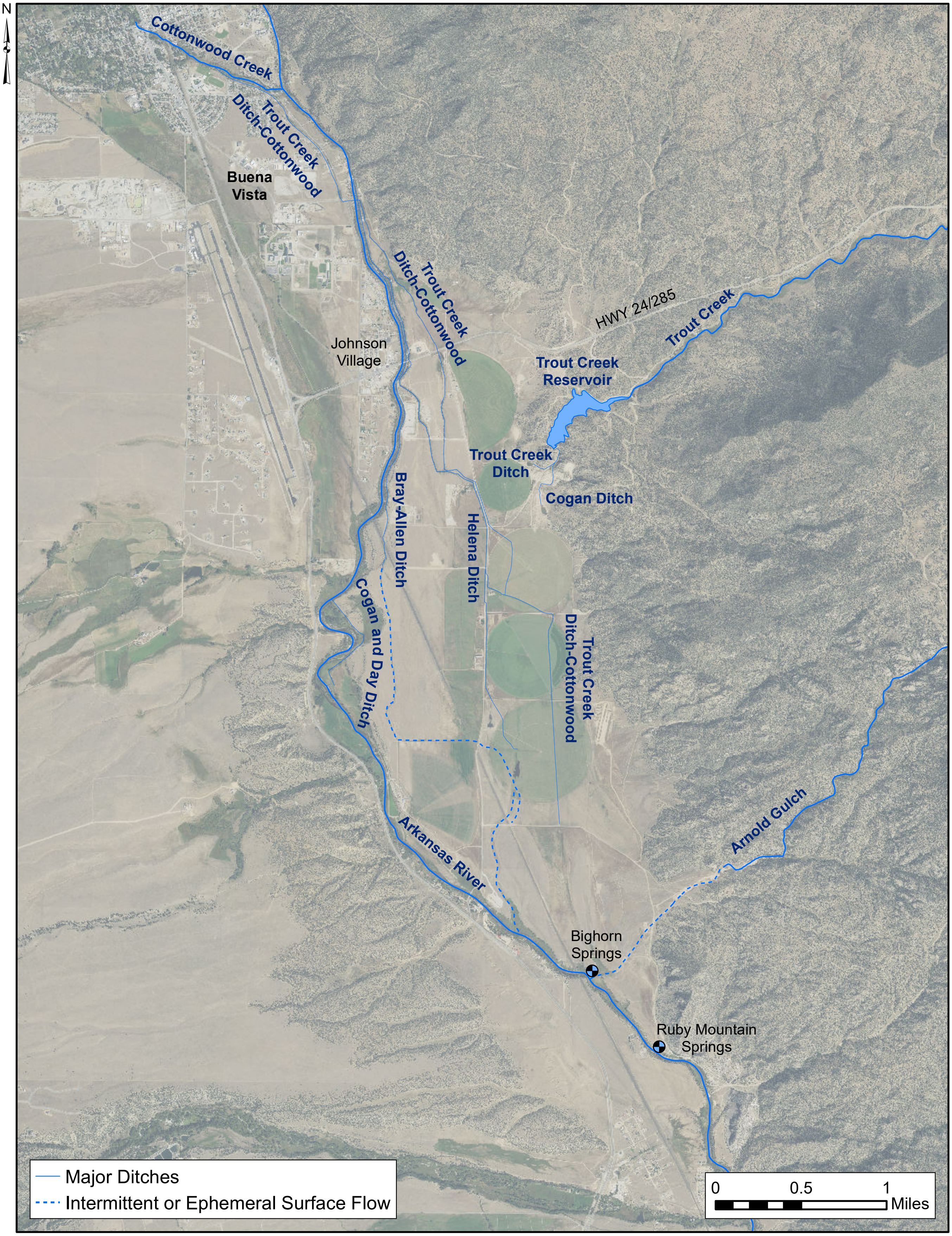


Figure 1.5 Surface Waters near Ruby Mountain Springs

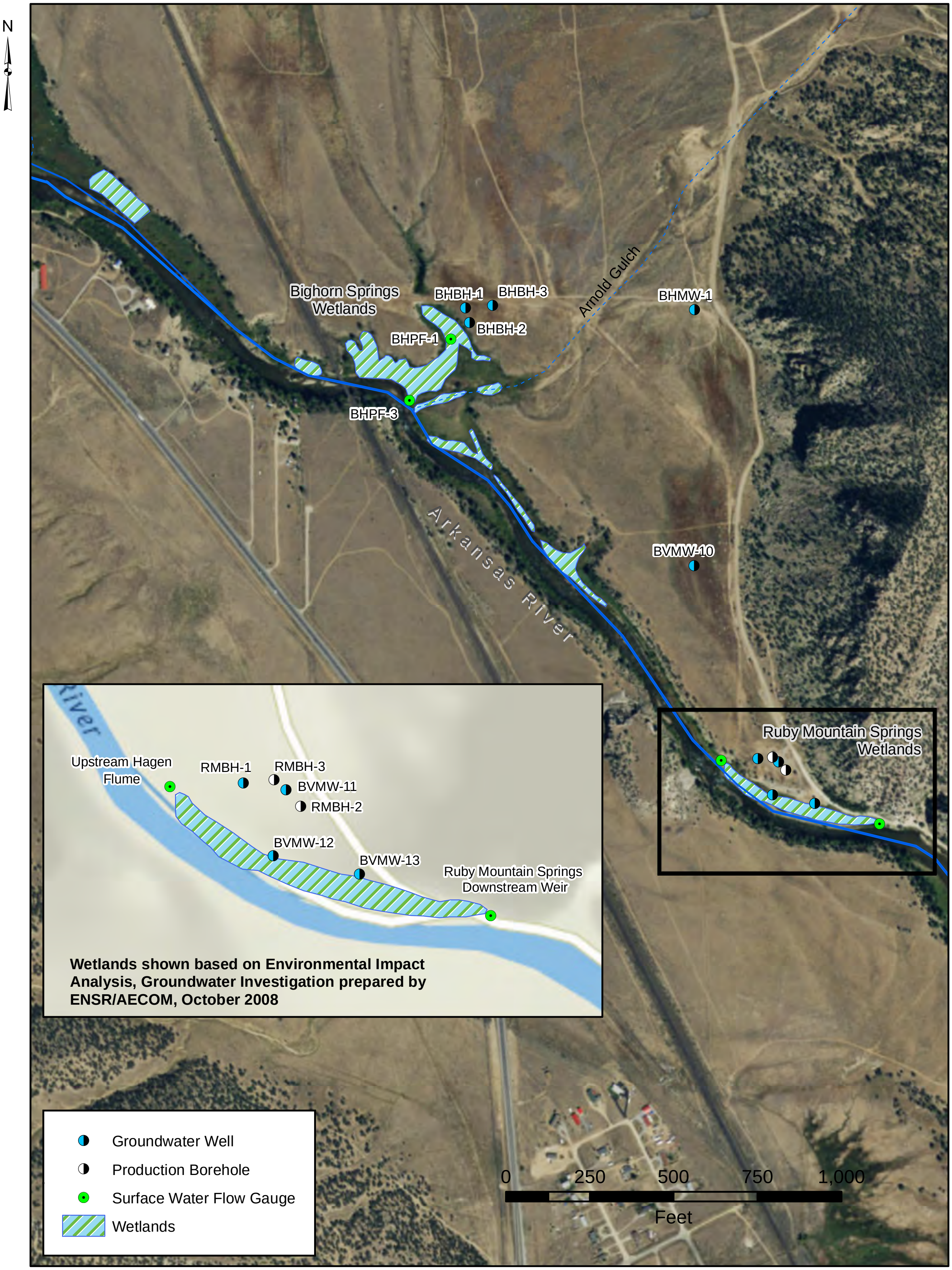


Figure 1.6 Wetland Areas near Bighorn Springs and Ruby Mountain Springs

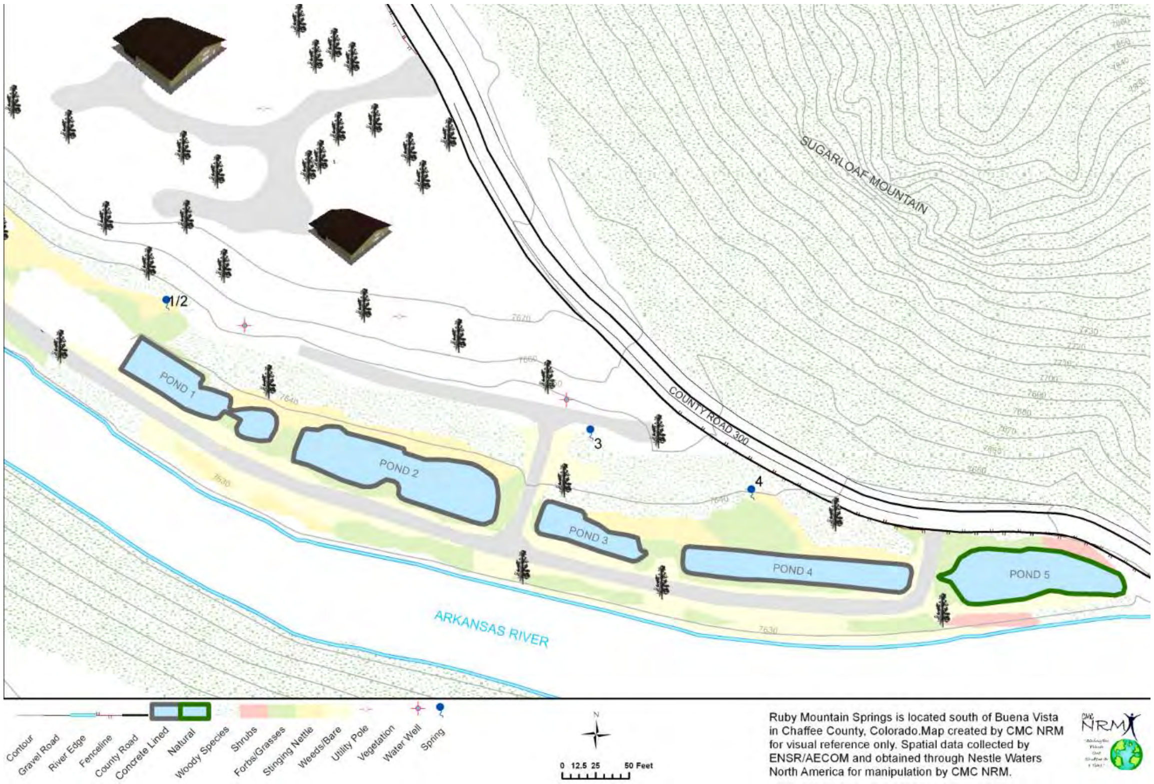


Figure 1.7a. Pre-Reclamation Site Conditions, Ruby Mountain Springs (CMC, 2011)

Note: Buildings shown are the pre-existing wellhouses, which were not affected by reclamation efforts.

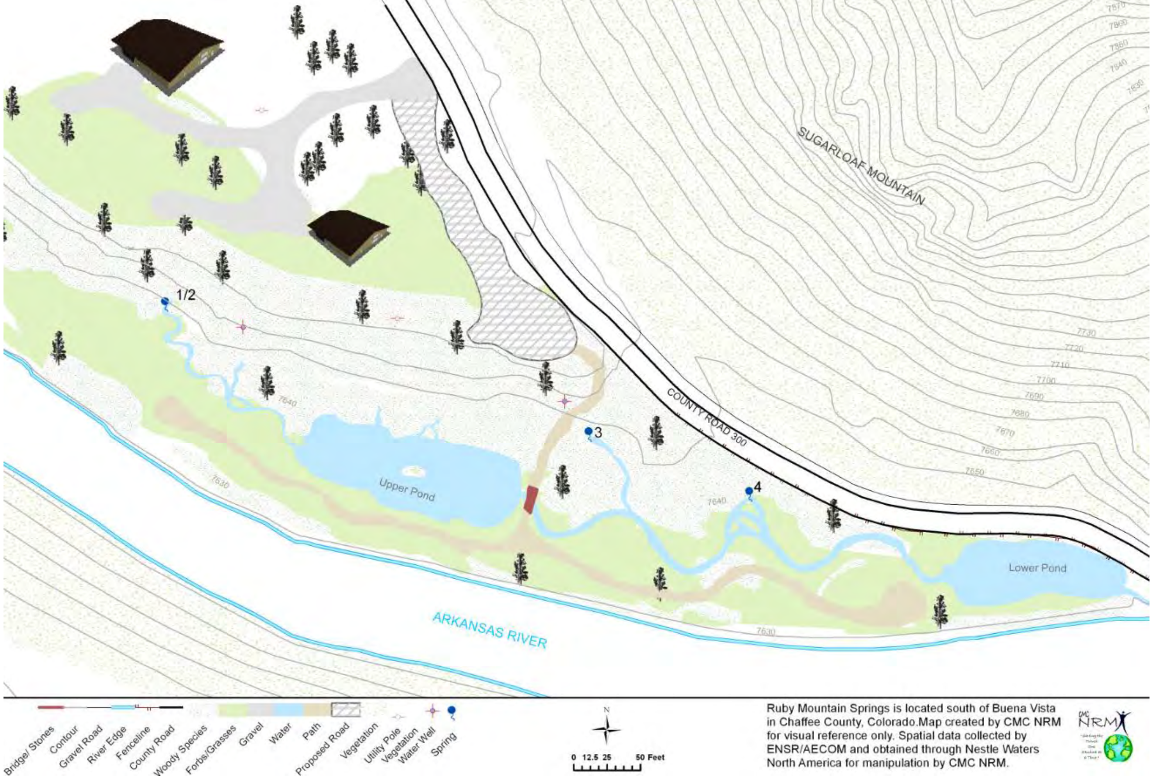


Figure 1.7b. Post-Reclamation Site Conditions, Ruby Mountain Springs (CMC, 2011)

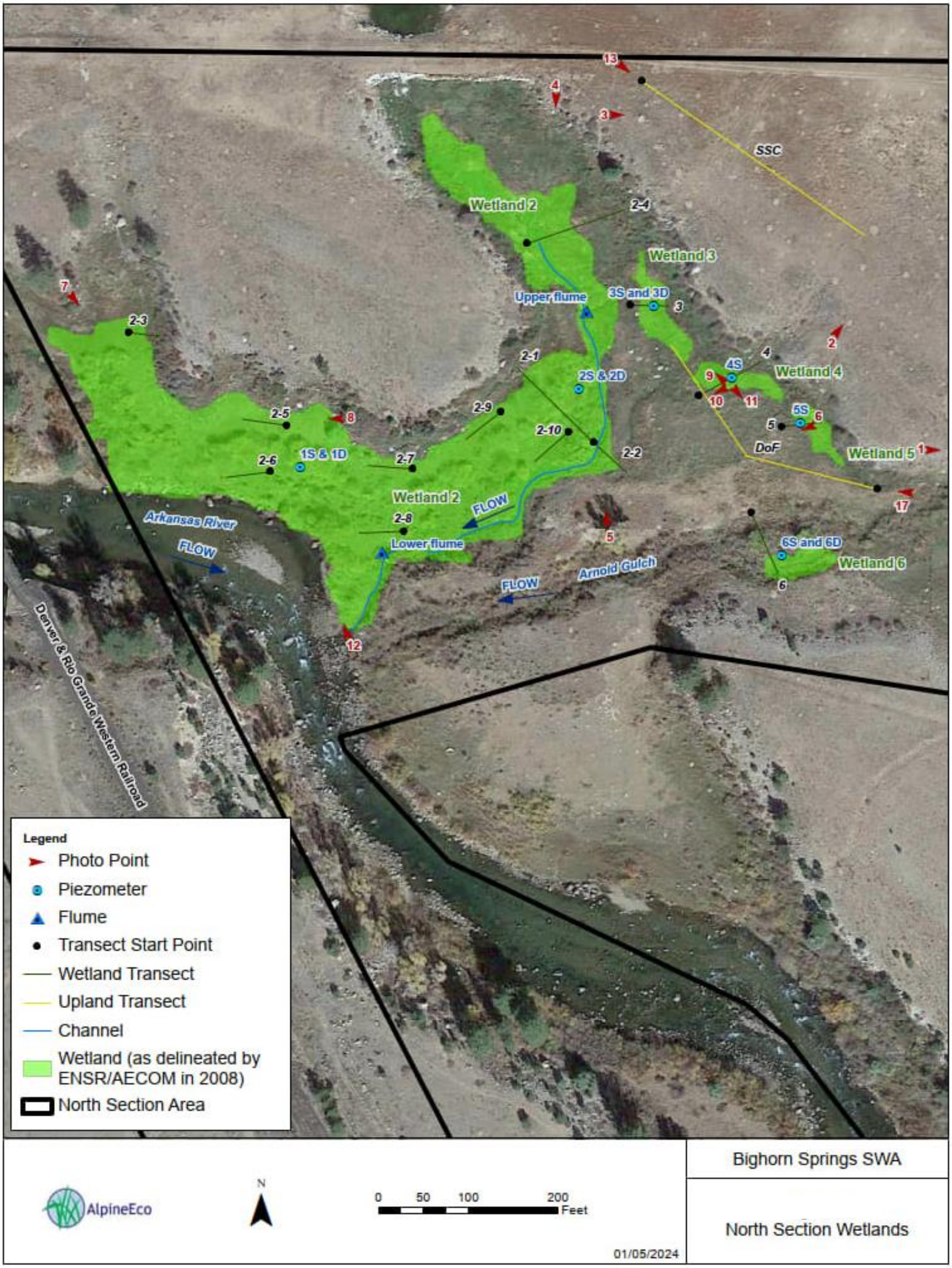


Figure 1.8 Wetland Monitoring Transects

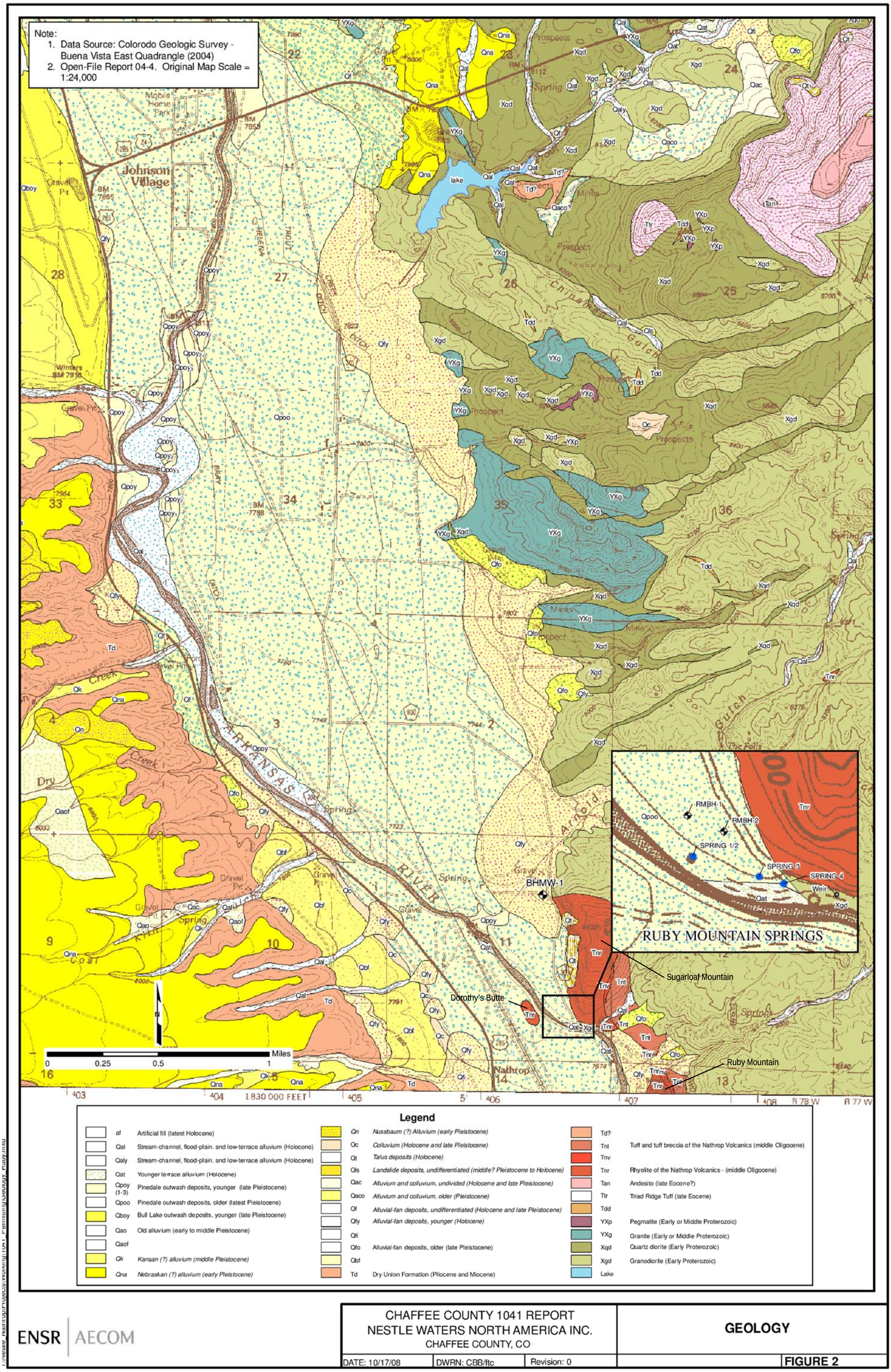
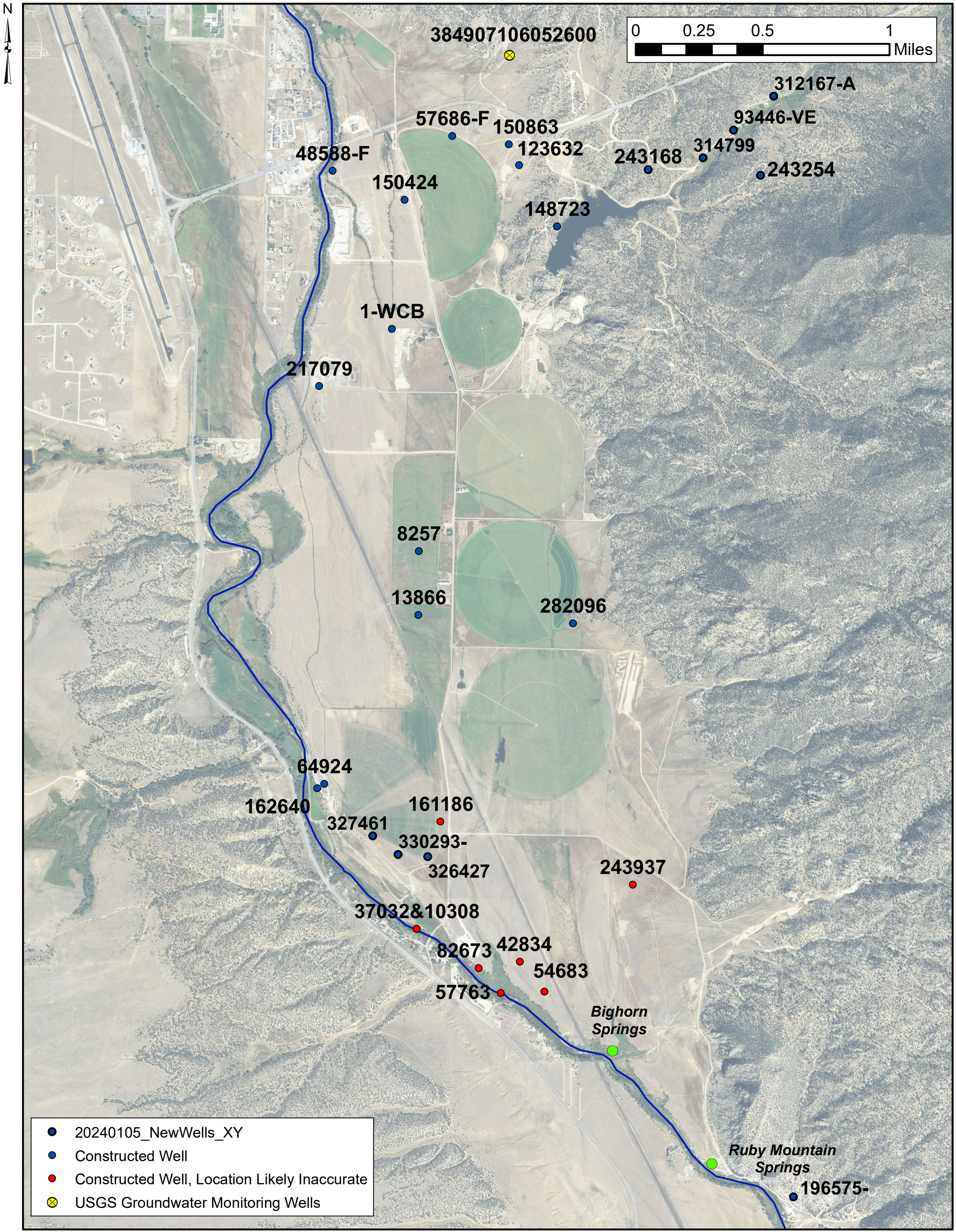


Figure 1.9 Geologic Map of the Area (AECOM, 2009)



Source: CWCD/DWR; dwr.state.co.us; Accessed 12/20/23

Figure 1.10 Locations of Other Groundwater Wells in the Ruby Mountain Springs Area

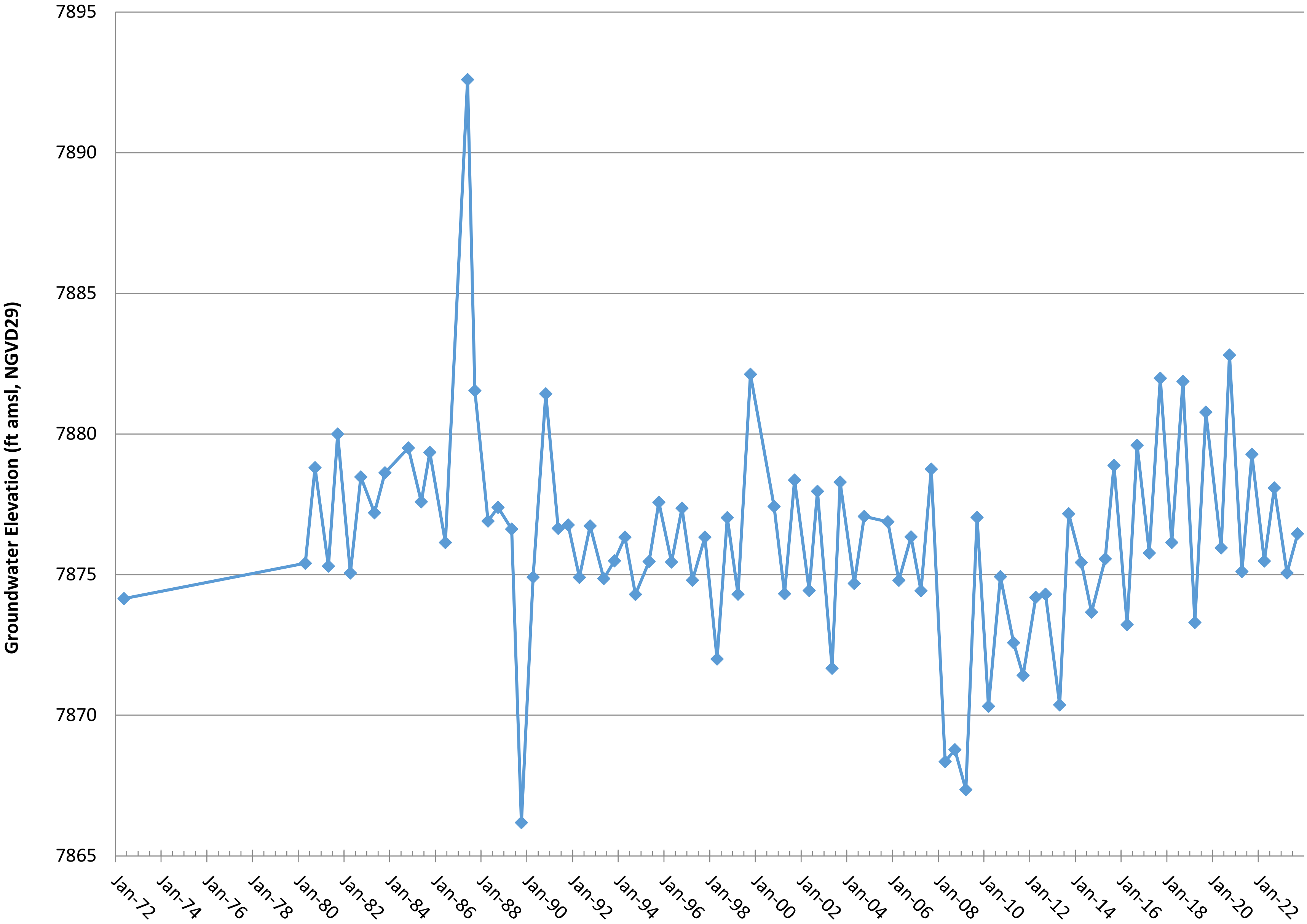
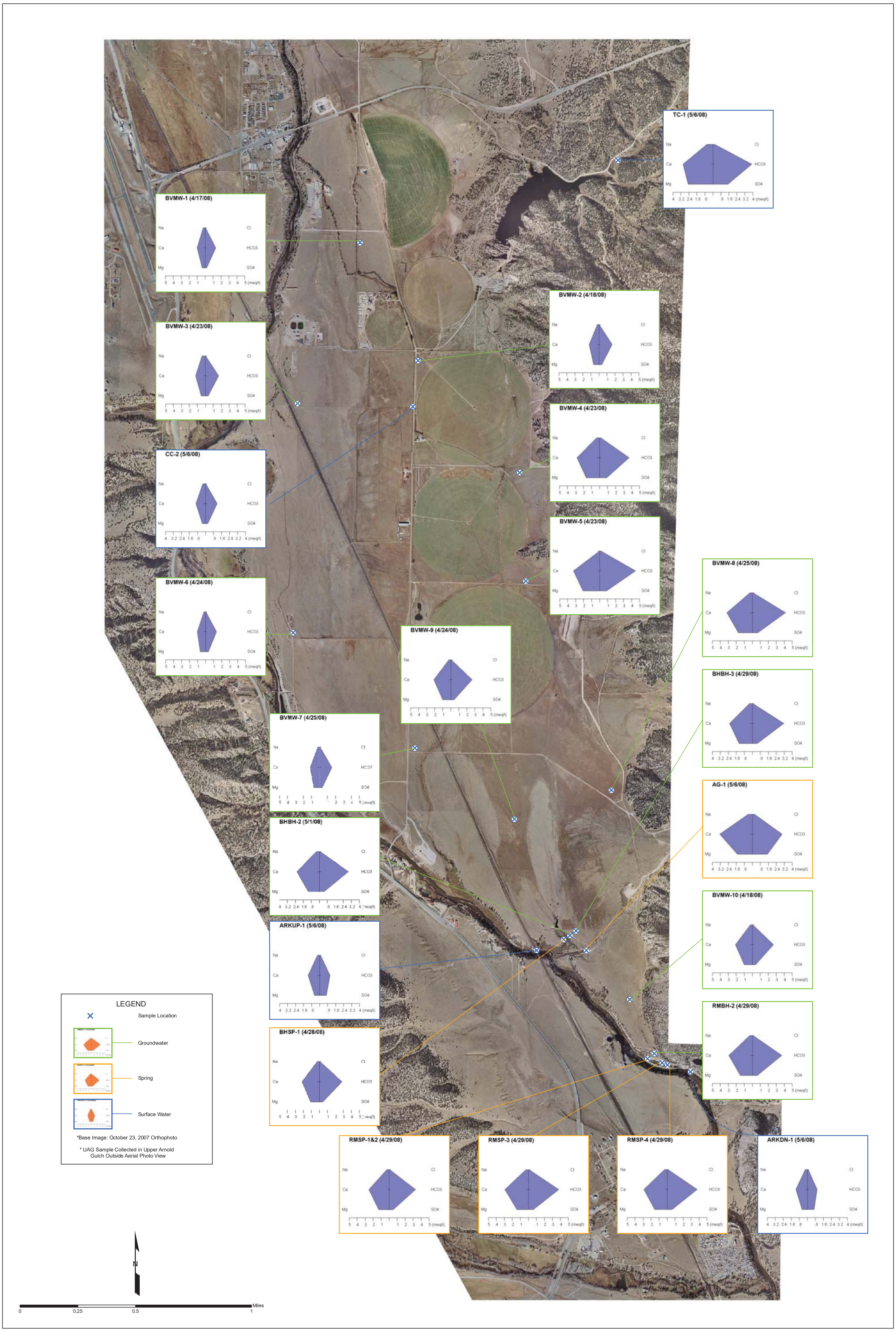


Figure. 1.11 Groundwater Levels for USGS 384907106052600



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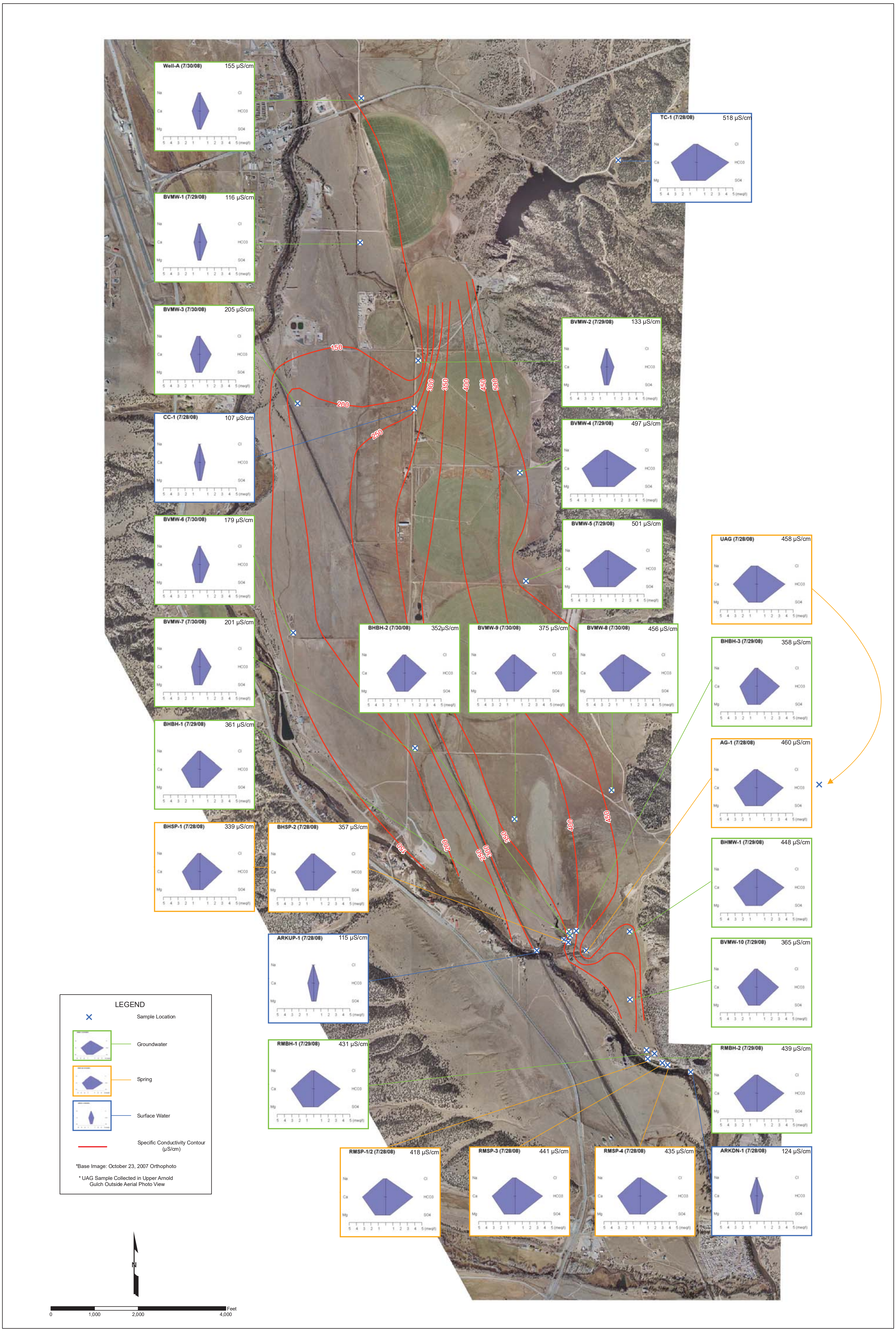
MONITORING NETWORK GEOCHEMISTRY
APRIL AND MAY 2008
BUENA VISTA PHASE II REPORT

FIGURE 3.10a

Figure 1.12a Groundwater Geochemistry for the NWNA Monitoring Network, April and May 2008 (AECOM, 2009)



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NESTLÉ WATERS NORTH AMERICA INC.

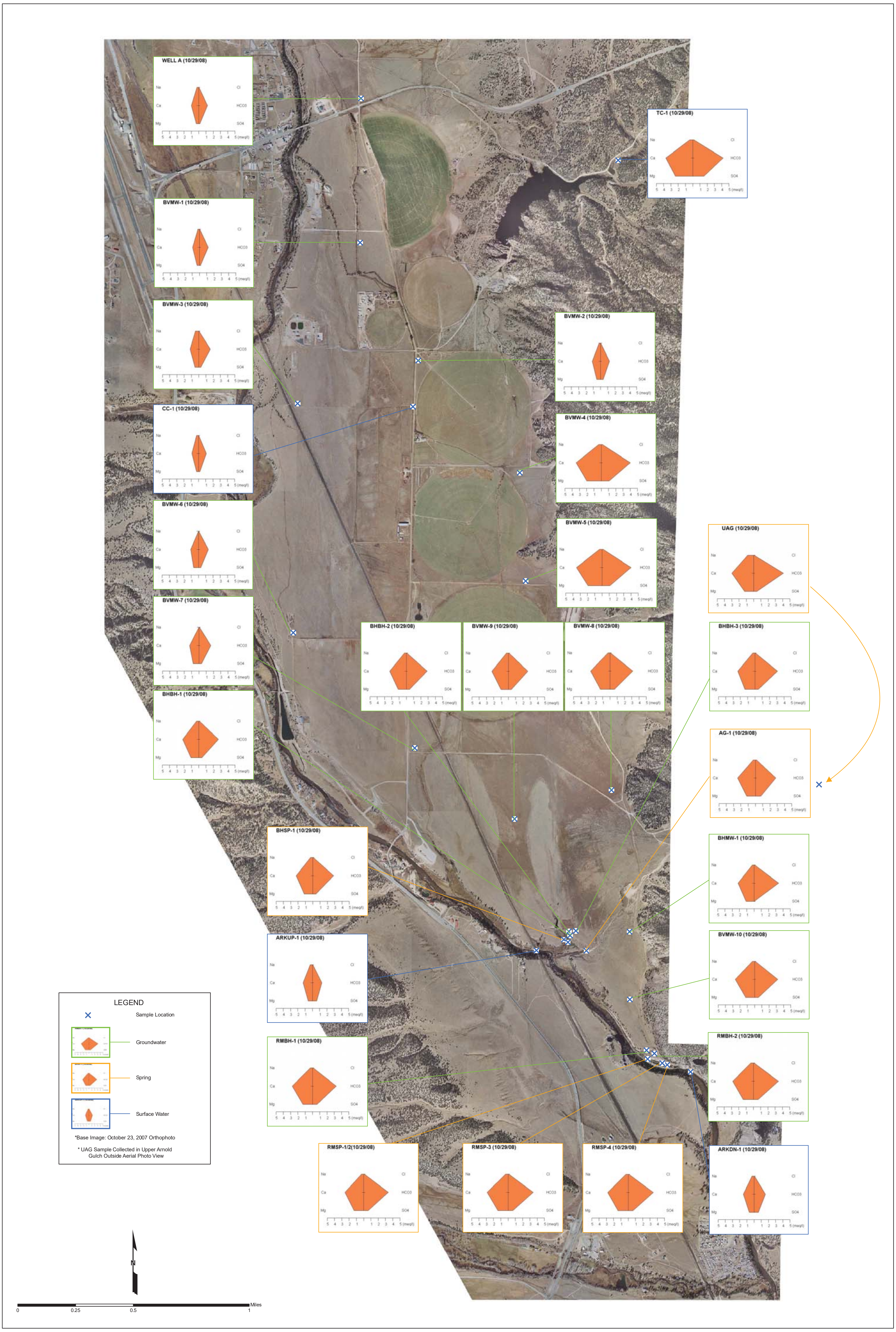
CHAFFEE COUNTY, CO

DATE: 05/15/2009 DRWN: CBB/ftc Revision: 1

MONITORING NETWORK GEOCHEMISTRY
JULY 2008
BUENA VISTA PHASE II REPORT

FIGURE 3.10b

Figure 1.12b Groundwater Geochemistry for the NWNA Monitoring Network, July 2008 (AECOM, 2009)



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AECOM

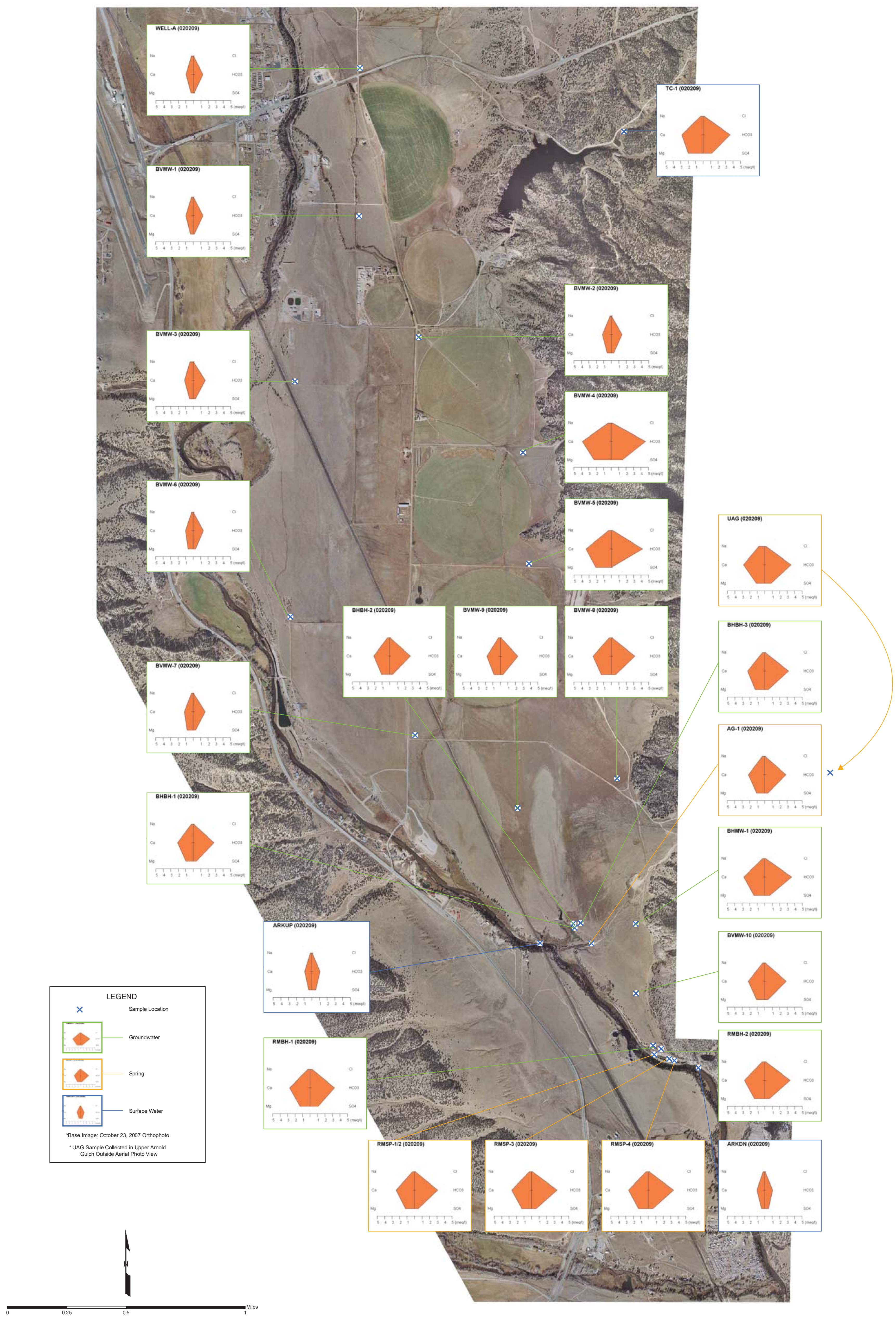
NESTLÉ WATERS NORTH AMERICA INC.

CHAFFEE COUNTY, CO

MONITORING NETWORK GEOCHEMISTRY
OCTOBER 2008
BUENA VISTA PHASE II REPORT

DATE: 03/13/09	DRWN: CBB/ftc	Revision: 0	**FIGURE 3.10c**

Figure 1.12c Groundwater Geochemistry for the NWNA Monitoring Network, October 2008 (AECOM, 2009)



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AECOM

NESTLÉ WATERS NORTH AMERICA INC.

CHAFFEE COUNTY, CO

MONITORING NETWORK GEOCHEMISTRY
FEBRUARY 2009
BUENA VISTA PHASE II REPORT

DATE: 07/20/09 | DRWN: CBB/ftc | Revision: 0

FIGURE 3.10d

Figure 1.12d Groundwater Geochemistry for the NWNA Monitoring Network, February 2009 (AECOM, 2009)

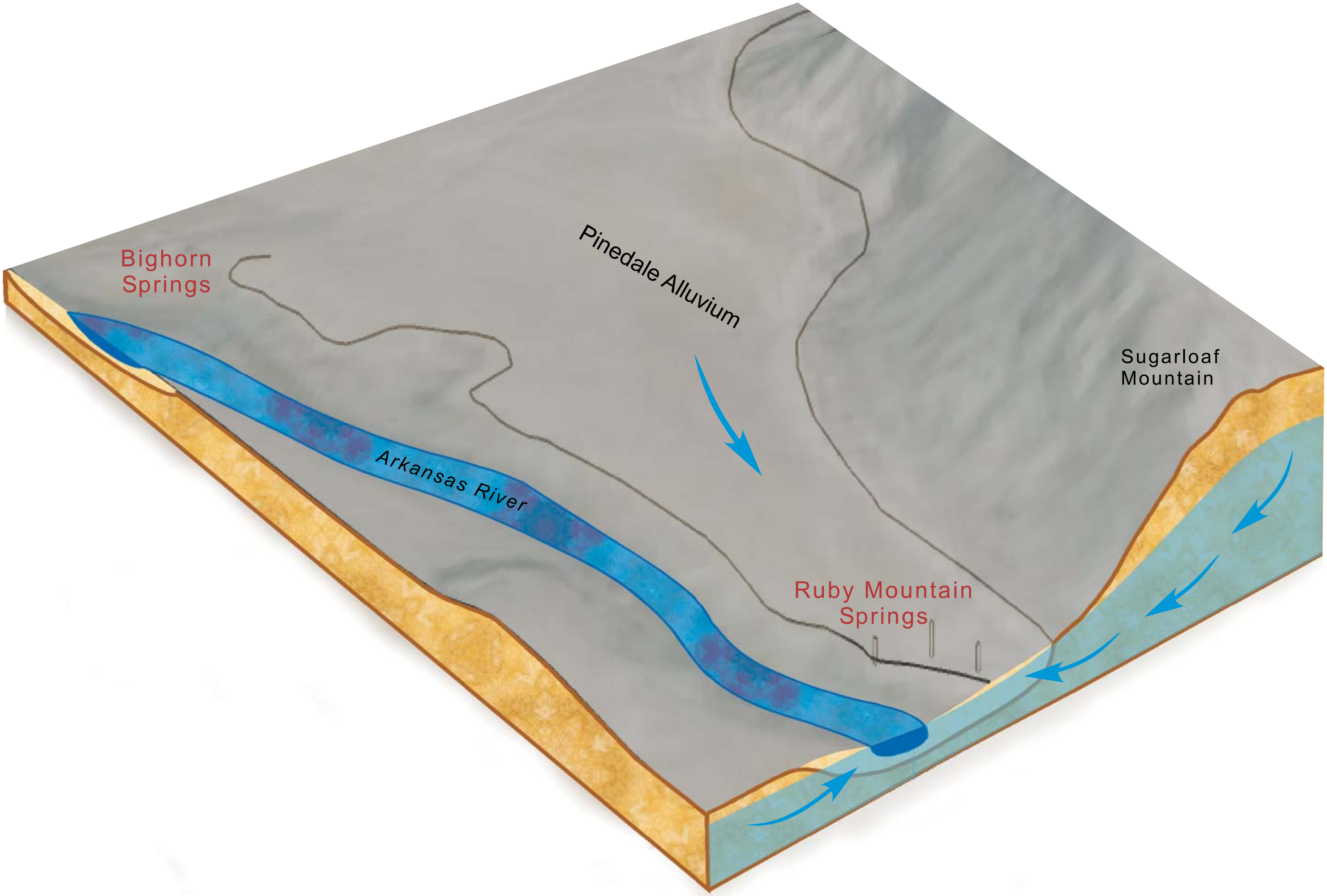
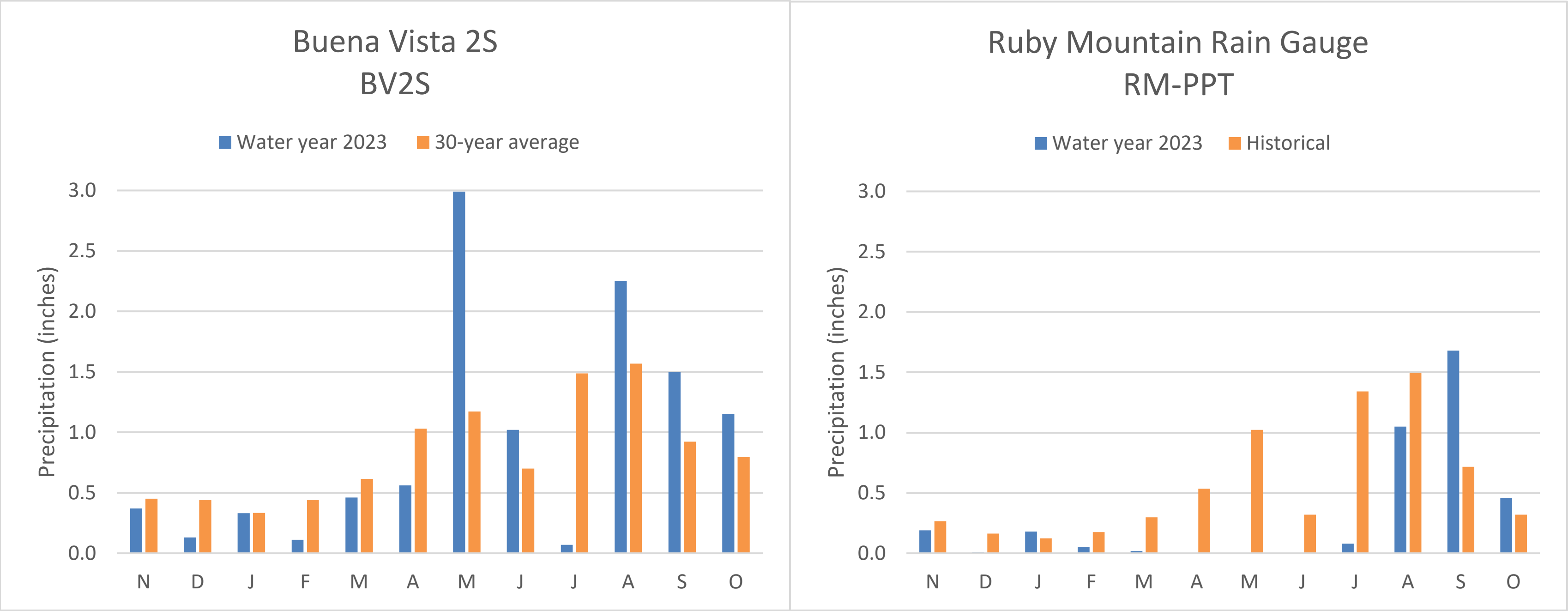


Figure 1.13 Conceptual Site Model



Note: No measurements are available April-June for RM-PPT due to datalogger malfunction.

Figure 2.1a 2023 Monthly Precipitation Observations Compared to Normals

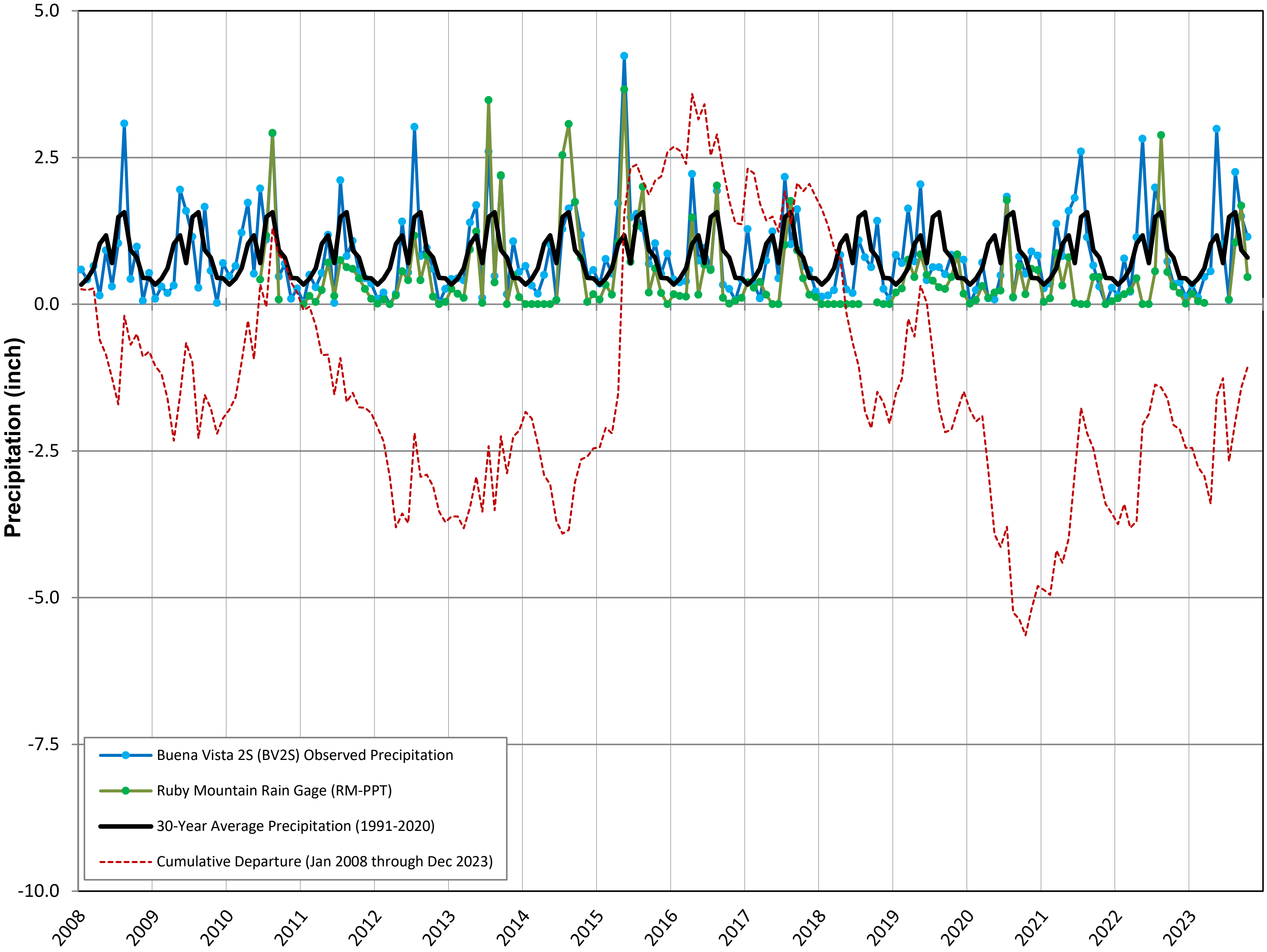


Figure 2.1b Monthly Precipitation and Cumulative Departure from Normal

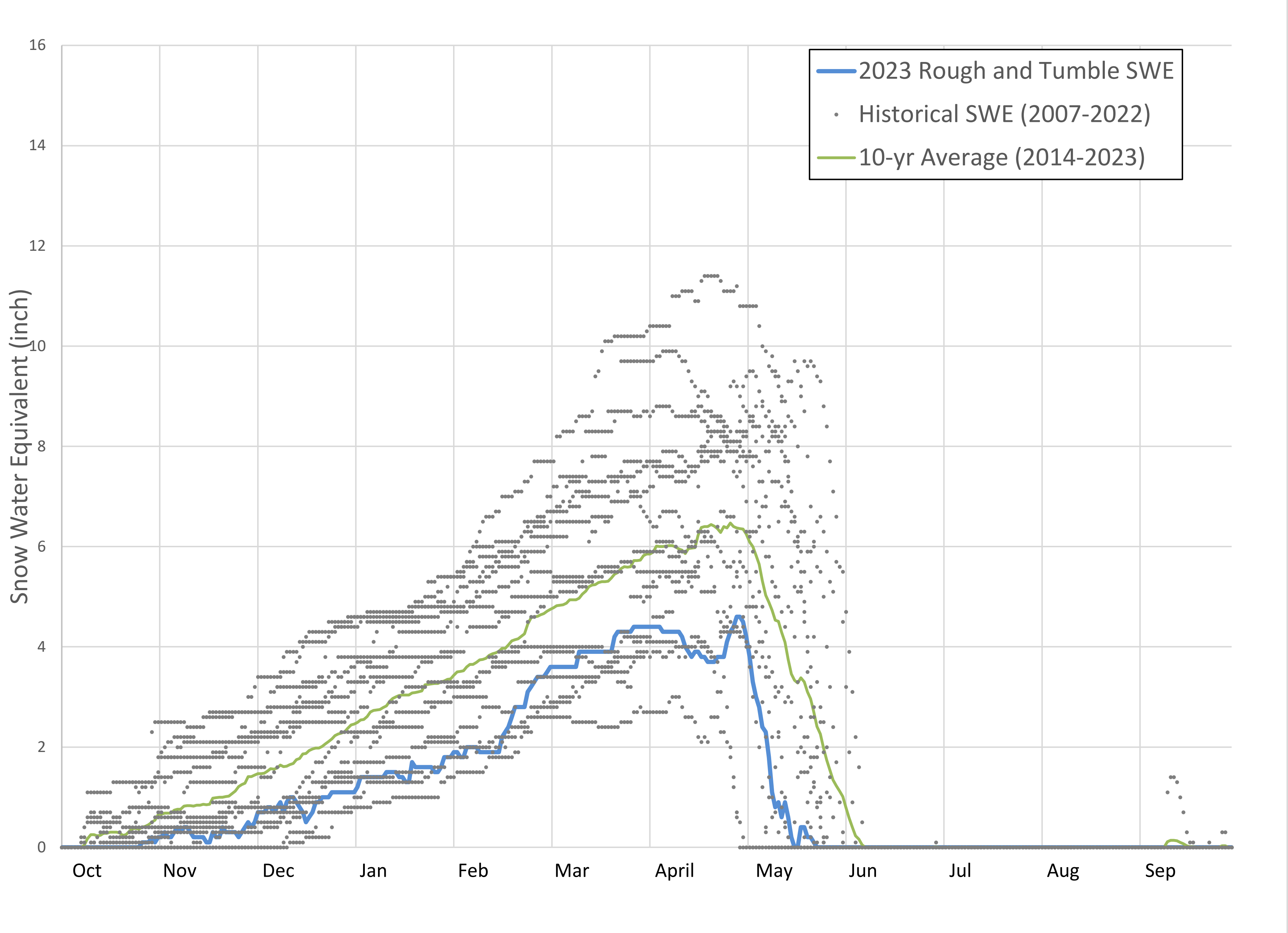


Figure 2.2a. SNOTEL Snow Water Equivalent (SWE) at Rough and Tumble SNOTEL Station

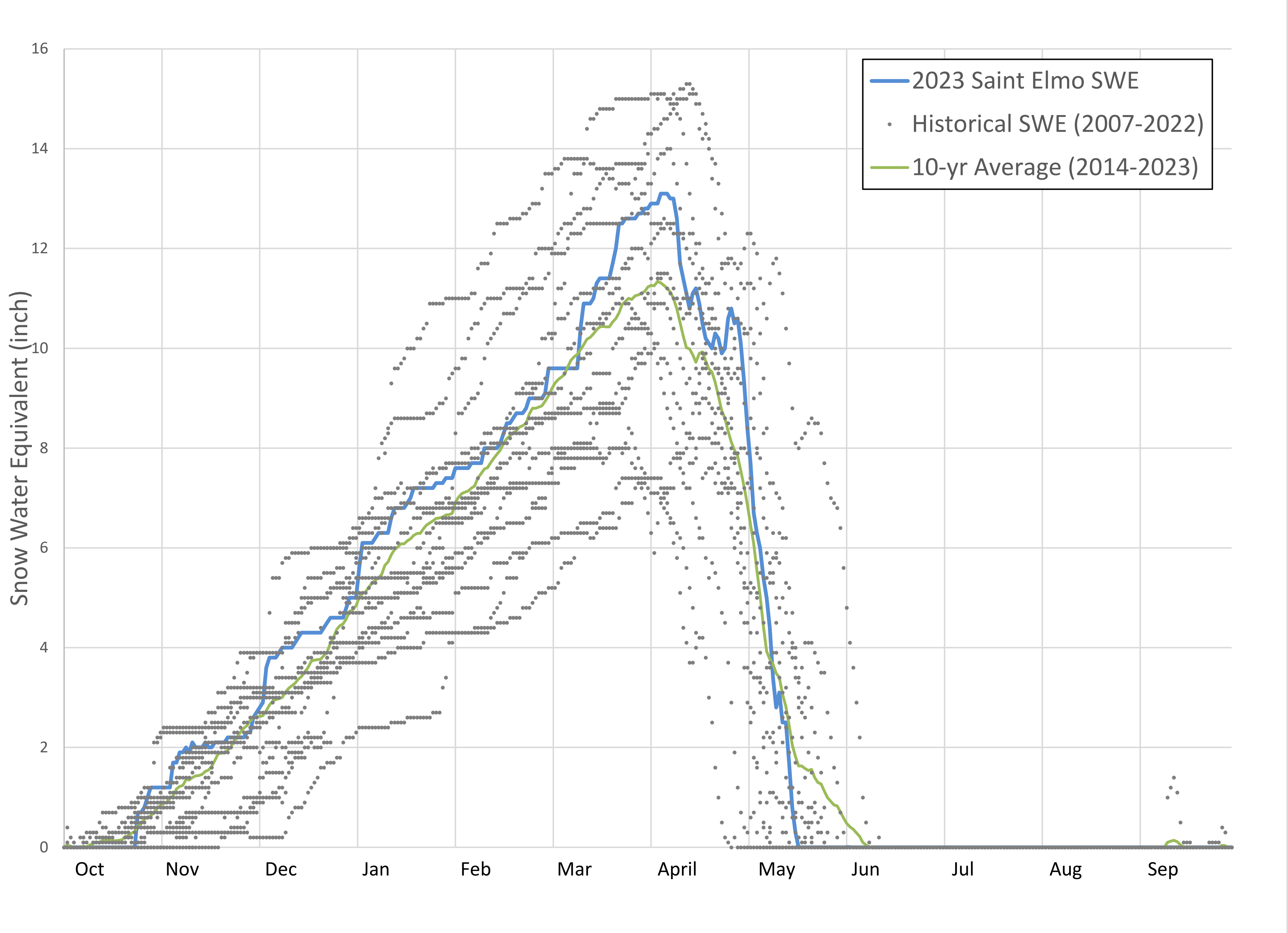


Figure 2.2b. SNOTEL Snow Water Equivalent (SWE) at Saint Elmo SNOTEL Station

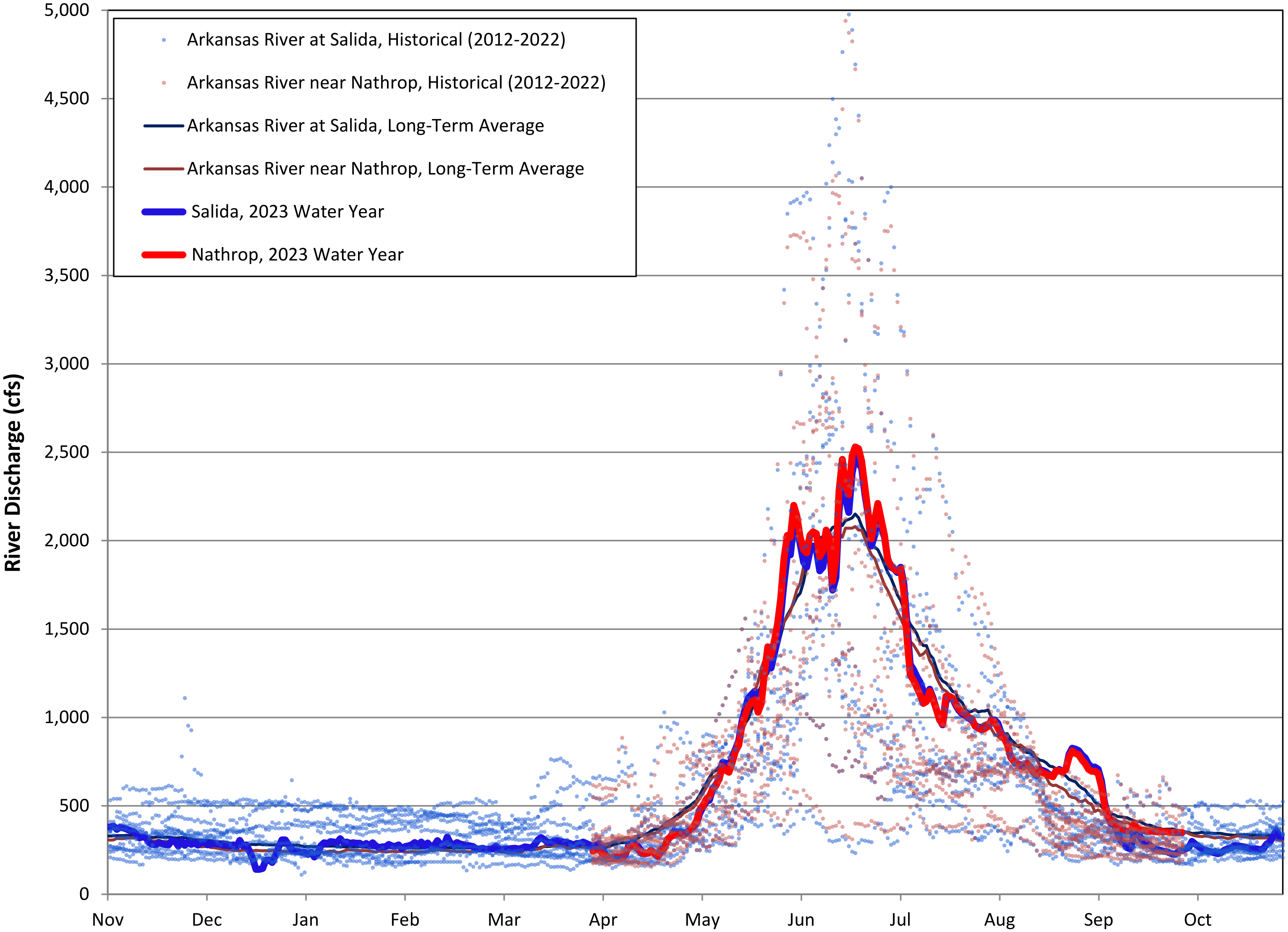
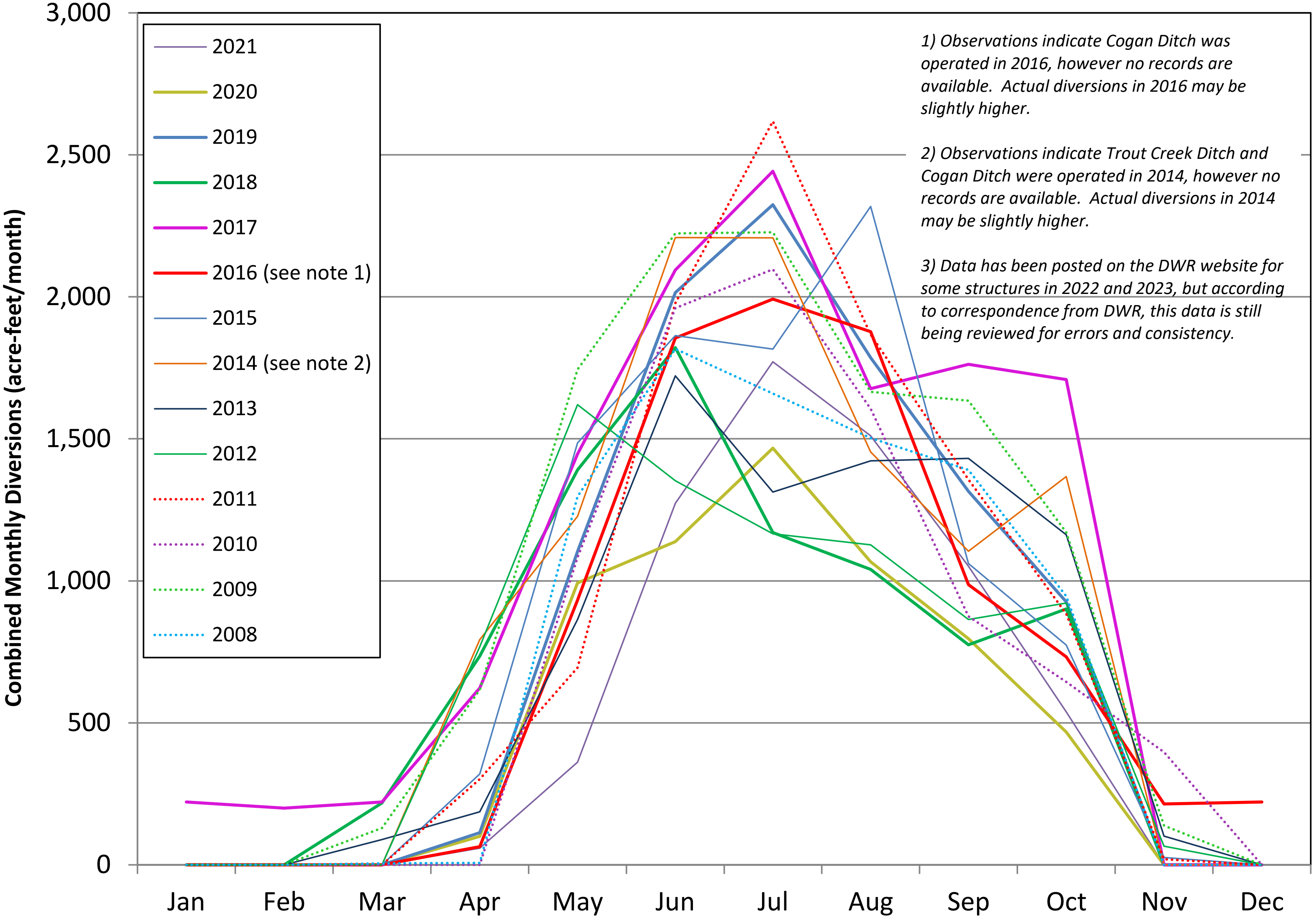


Figure 2.3 Average Daily Flow and Long-Term Flow for Gages at the Arkansas River near Nathrop and at Salida, 2012-2023 Water Years



1) Observations indicate Cogan Ditch was operated in 2016, however no records are available. Actual diversions in 2016 may be slightly higher.

2) Observations indicate Trout Creek Ditch and Cogan Ditch were operated in 2014, however no records are available. Actual diversions in 2014 may be slightly higher.

3) Data has been posted on the DWR website for some structures in 2022 and 2023, but according to correspondence from DWR, this data is still being reviewed for errors and consistency.

Figure 2.4 Combined Monthly Total Diversions, 2008 to 2023

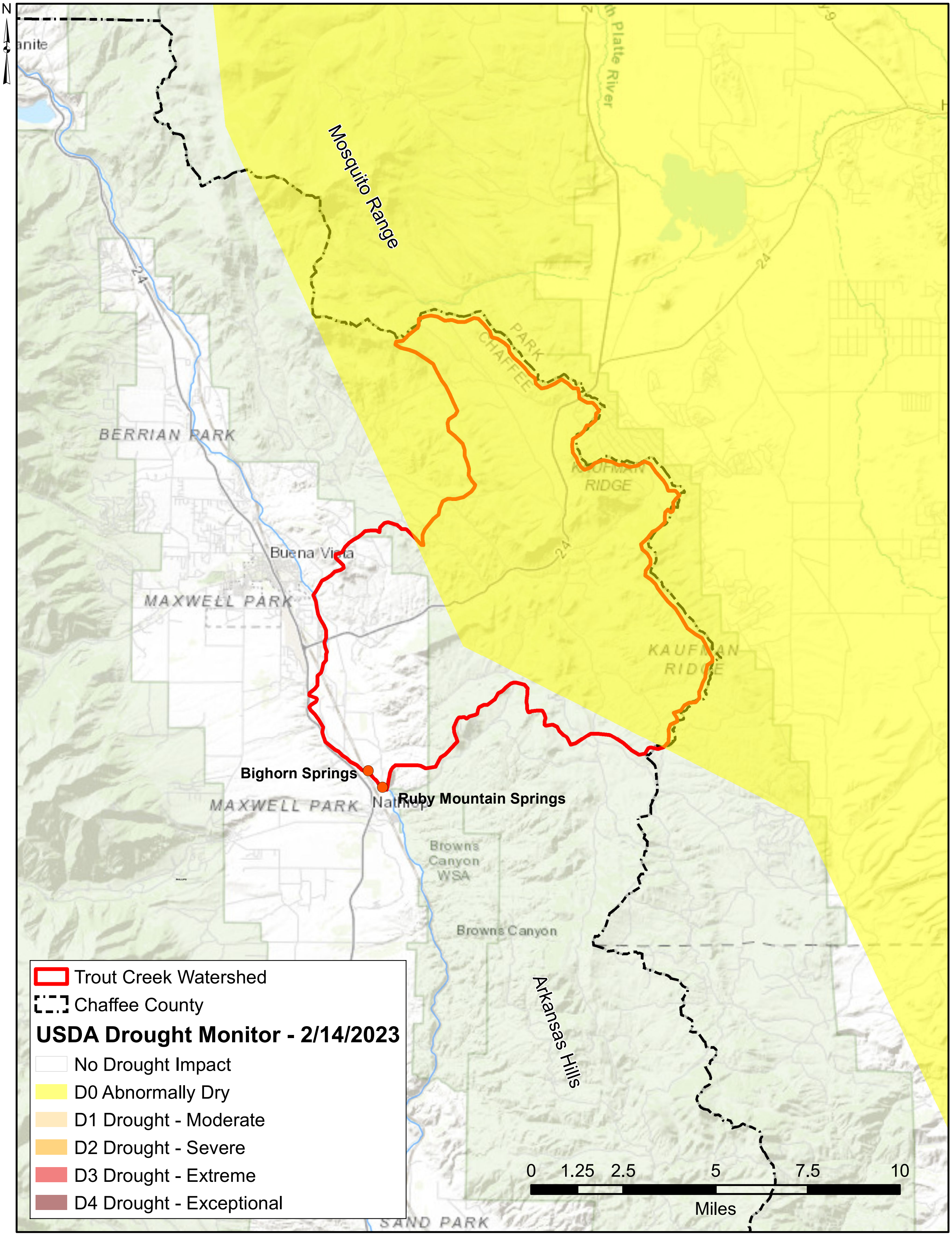


Figure 2.5a USDA Drought Monitor Map Q1 2023 - Chaffee County

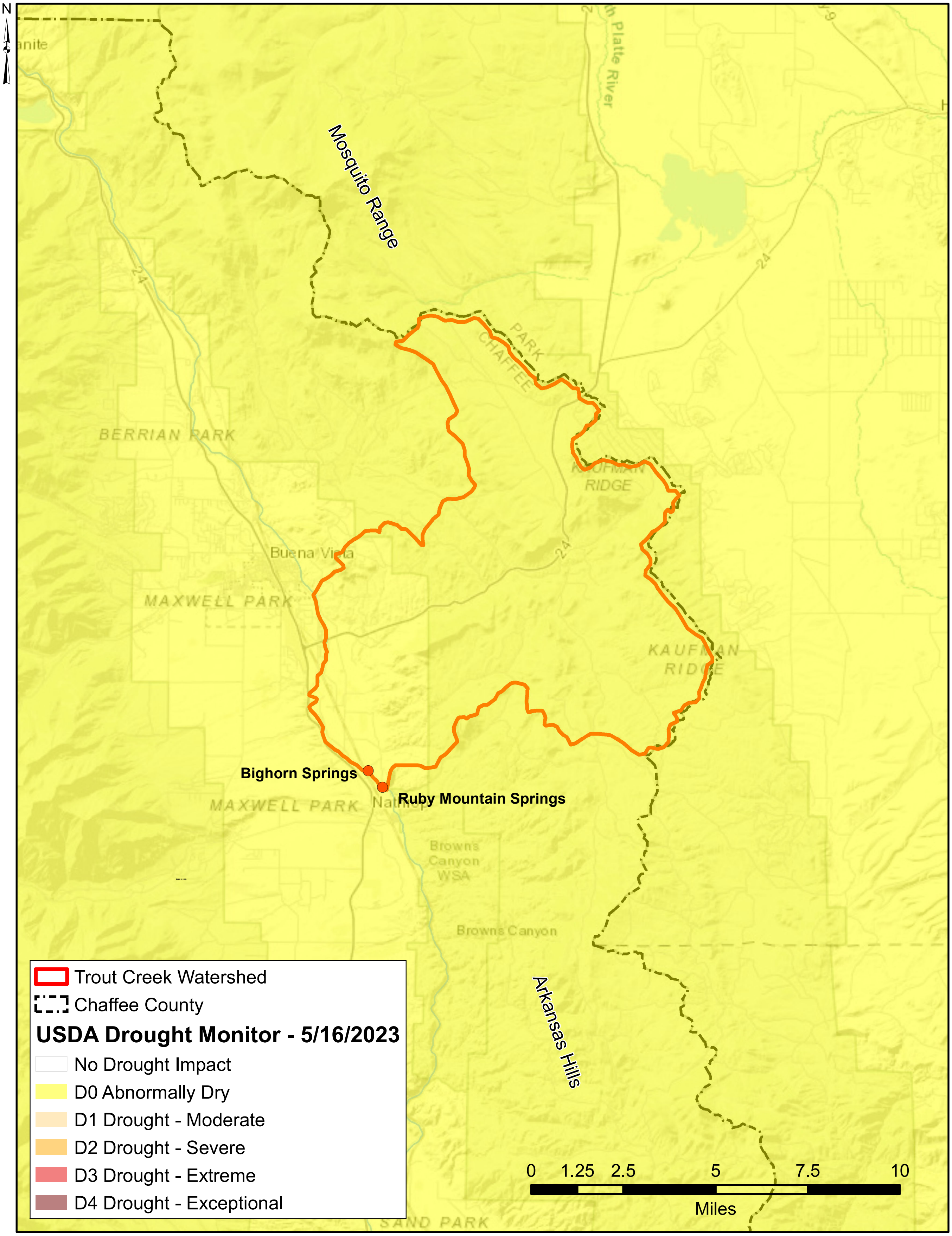


Figure 2.5b USDA Drought Monitor Map Q2 2023 - Chaffee County

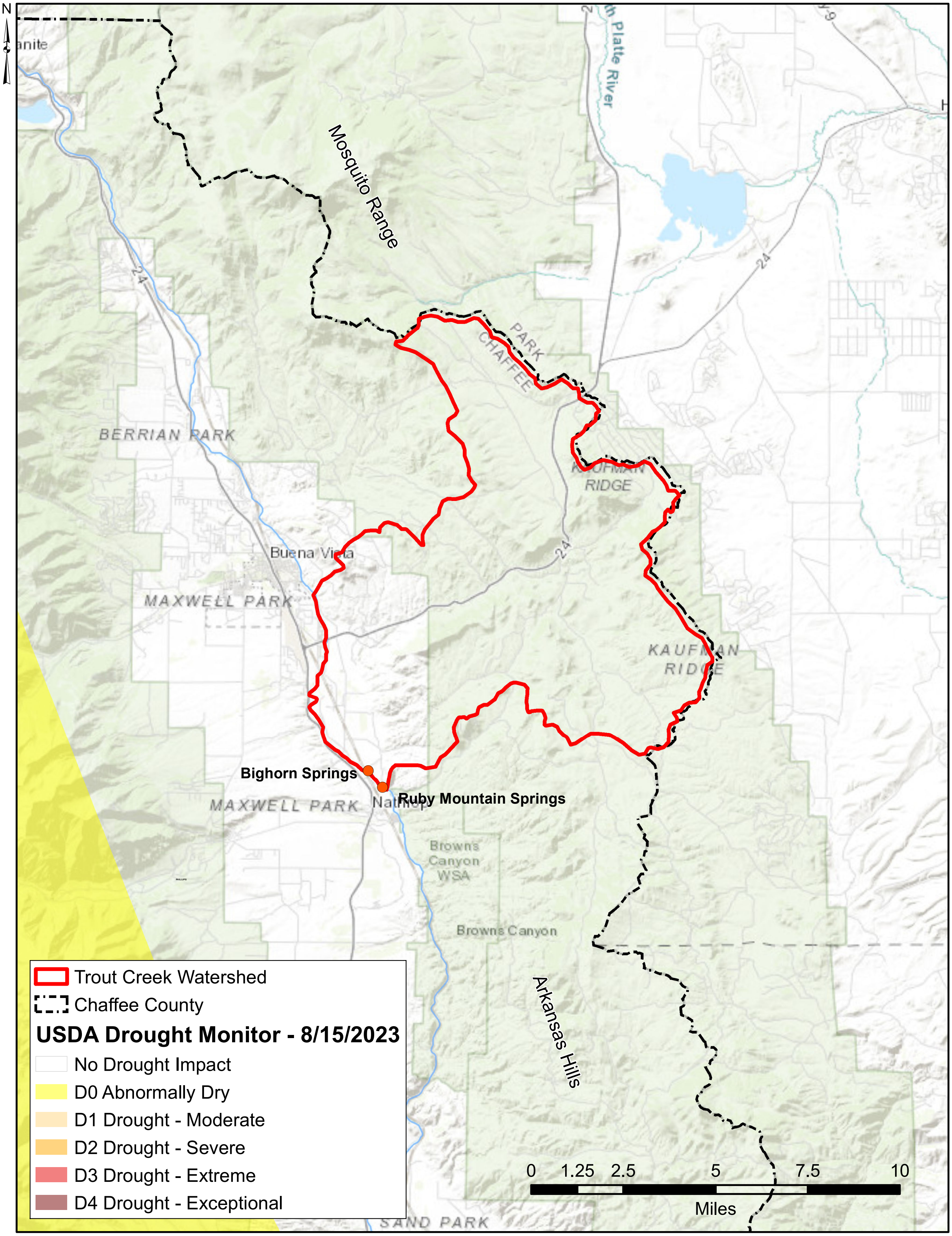


Figure 2.5c USDA Drought Monitor Map Q3 2023 - Chaffee County

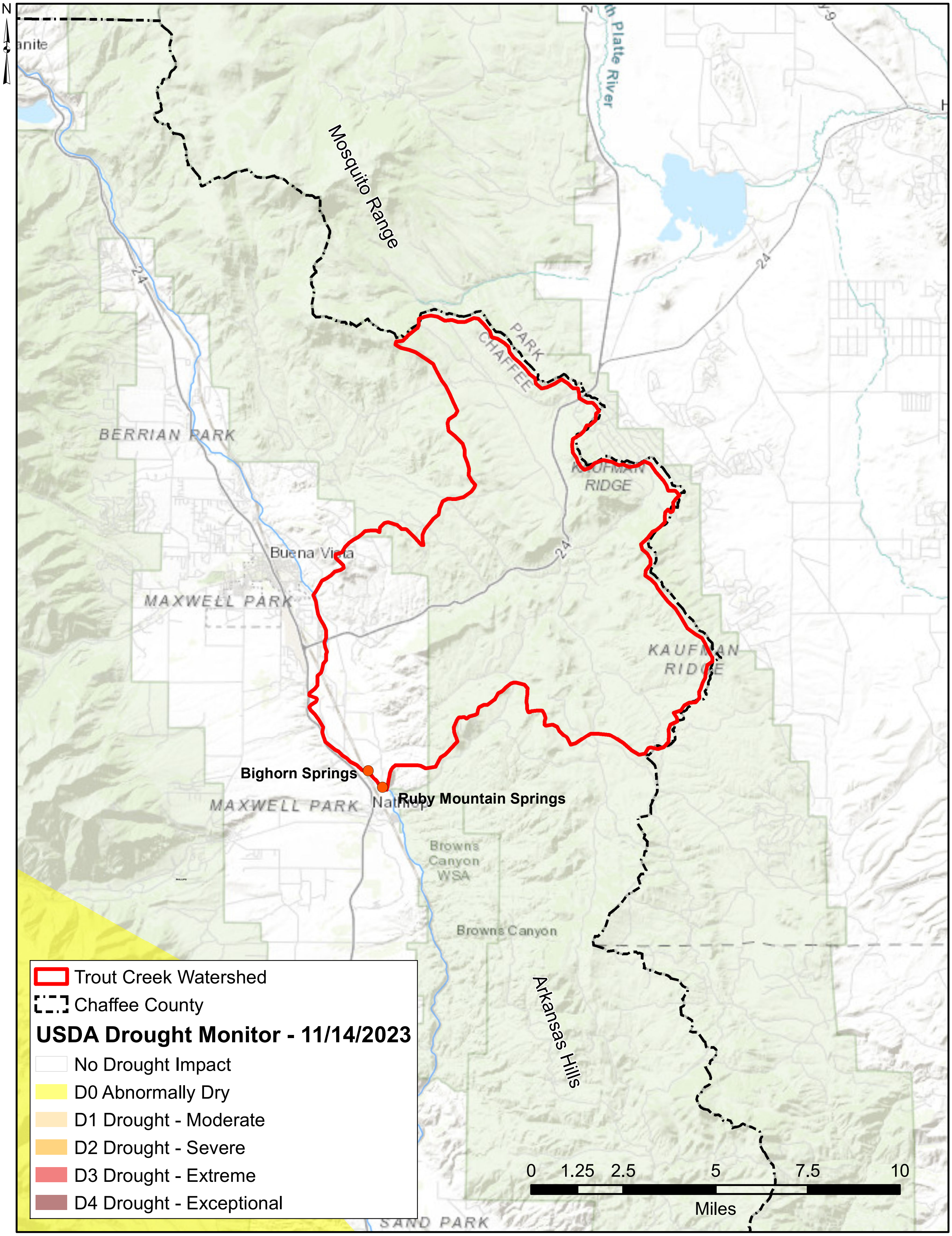


Figure 2.5d USDA Drought Monitor Map Q4 2023 - Chaffee County

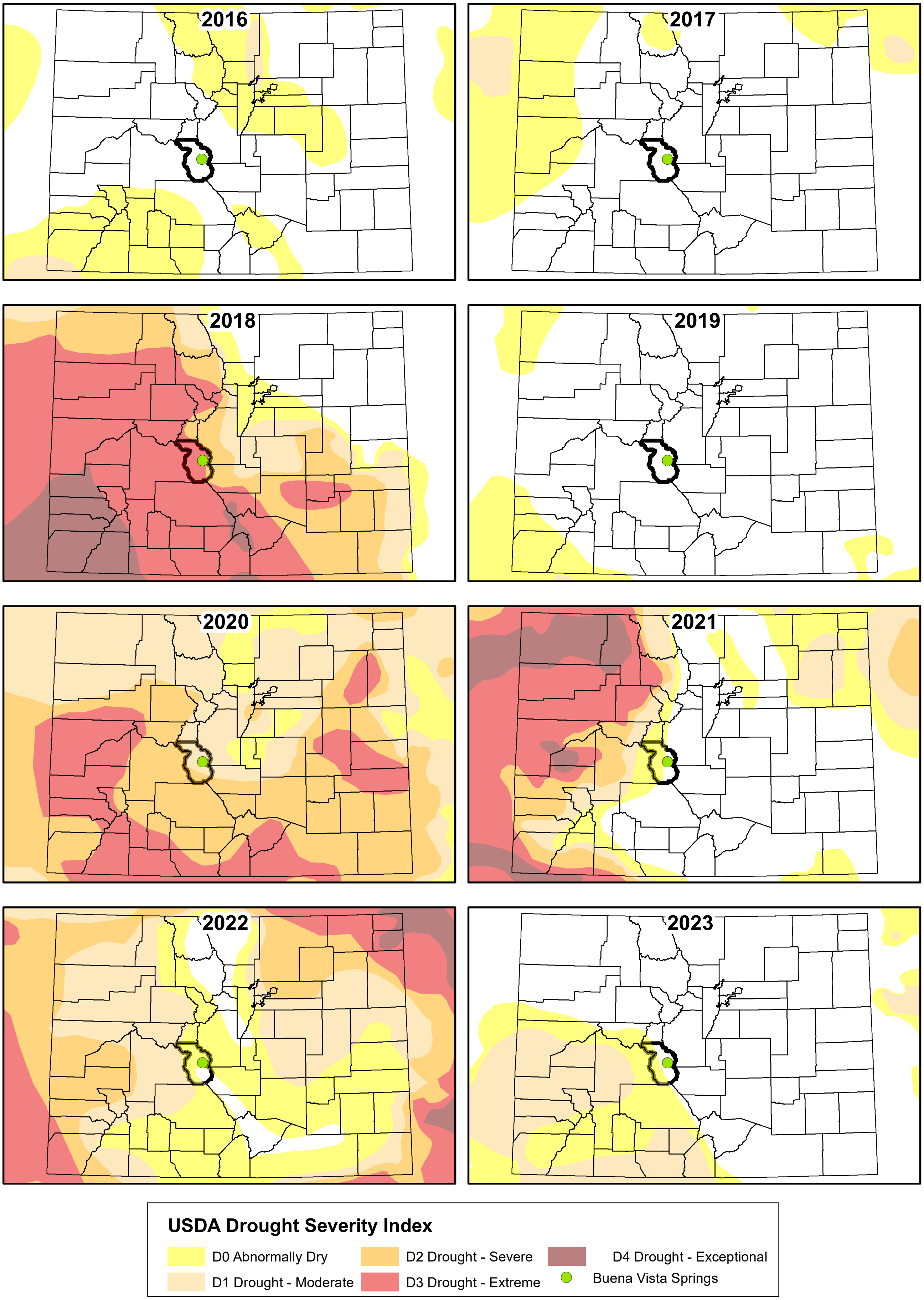


Figure 2.6 USDA Drought Monitor Map Q3 2016-2023

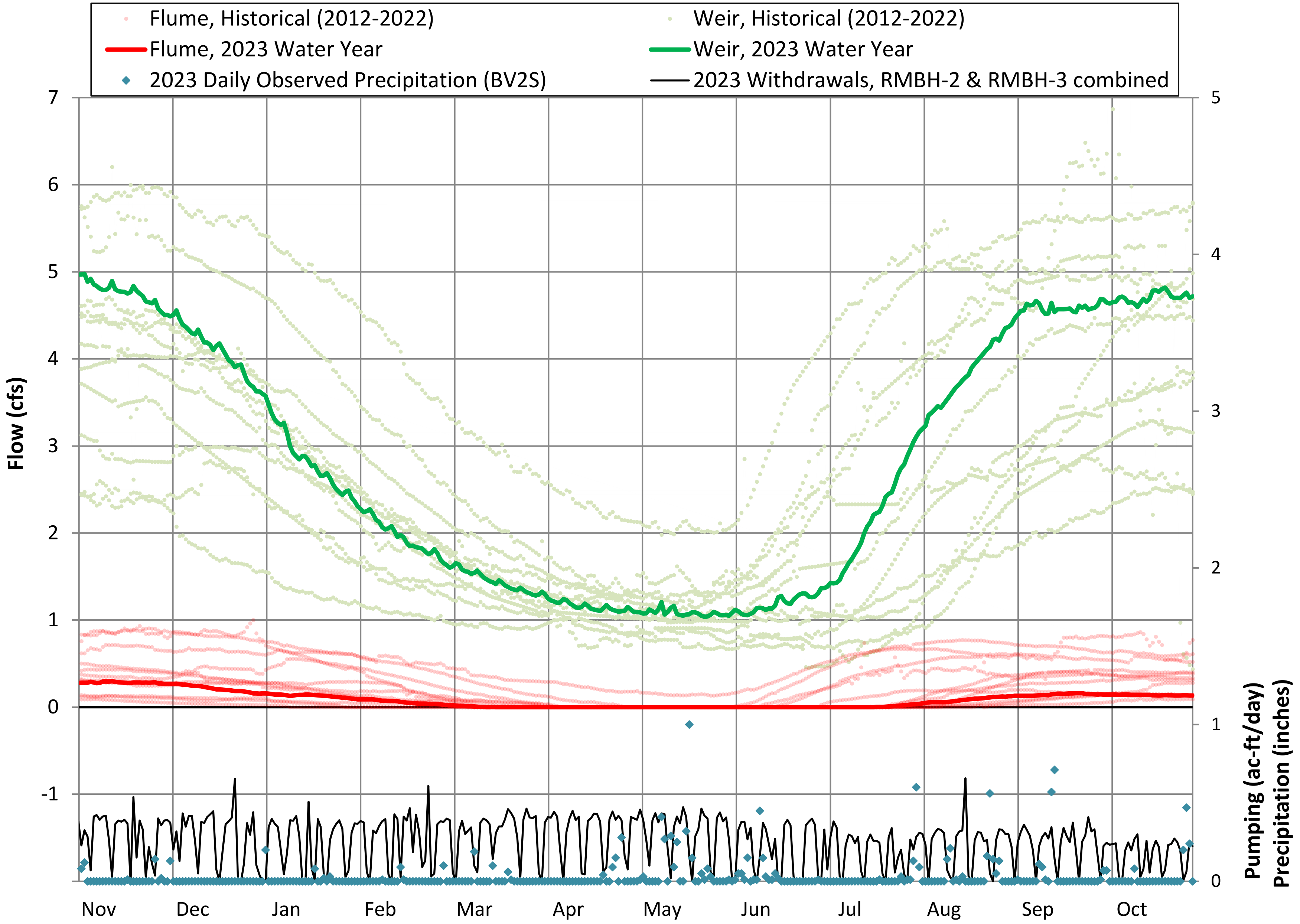


Figure 2.7 Average Daily Discharge, Ruby Mountain Springs, 2023 Water Year

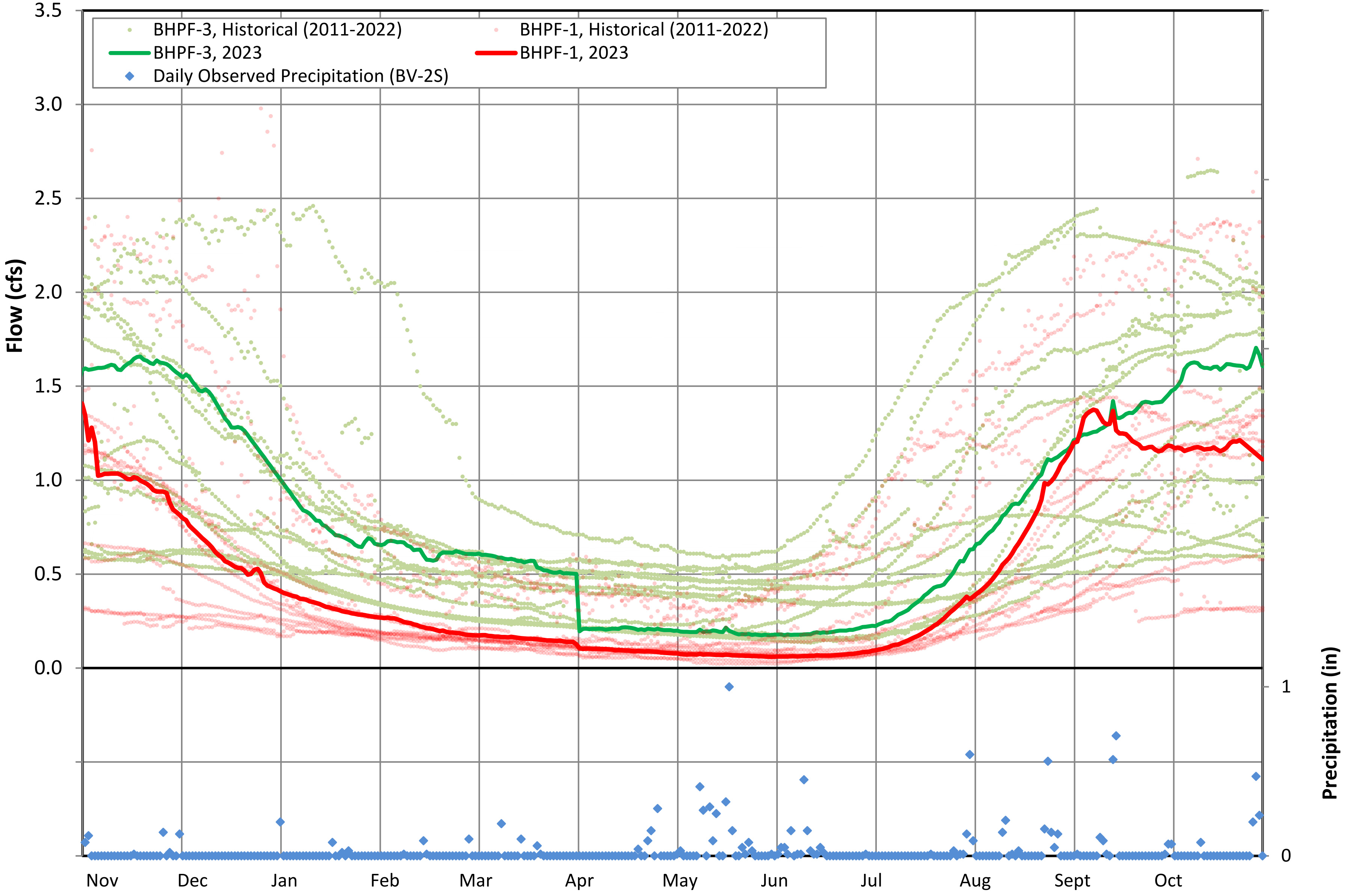


Figure 2.8 Average Daily Discharge, Bighorn Springs, 2023 Water Year

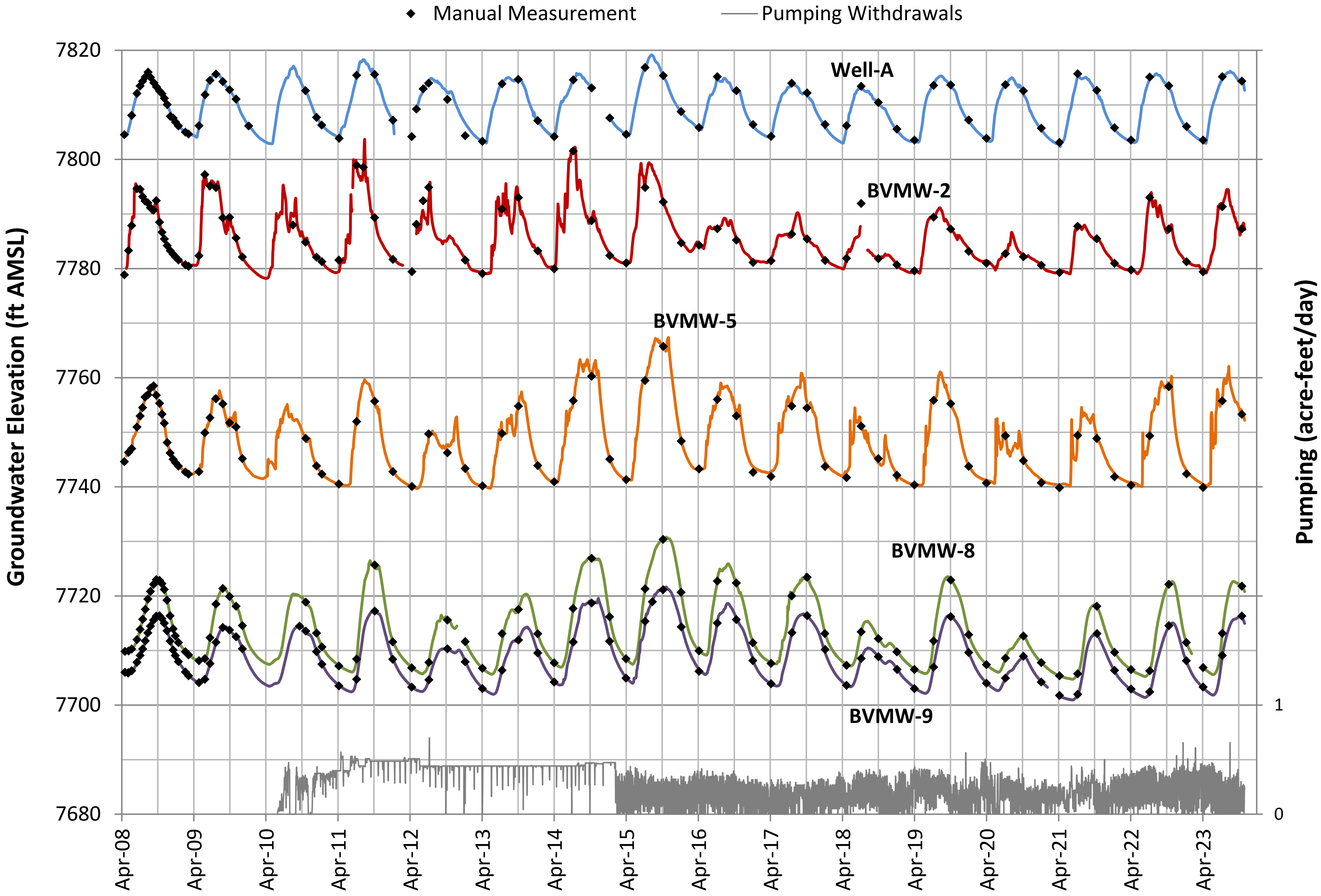


Figure 2.9 Groundwater Elevation Hydrographs, Up-gradient Wells

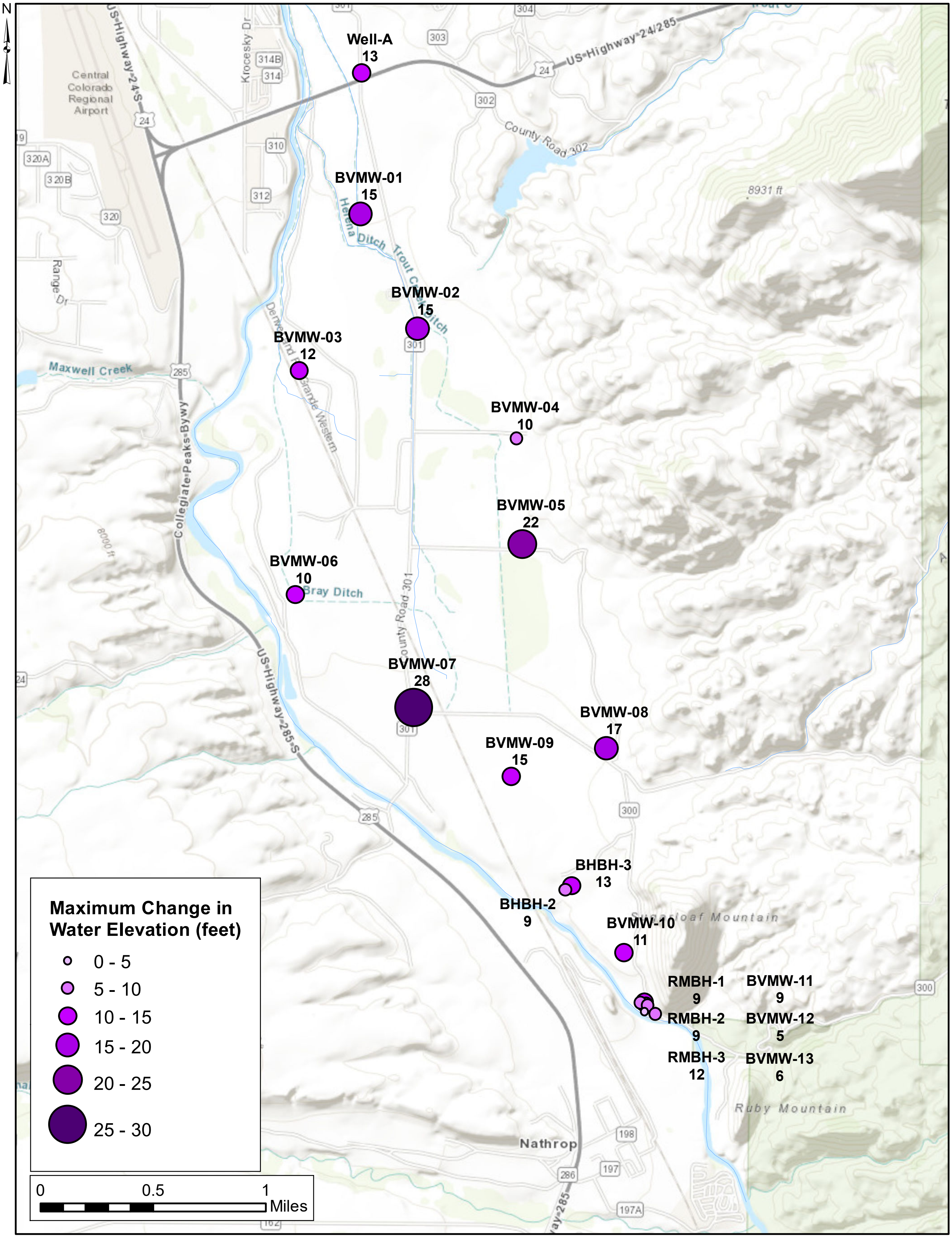
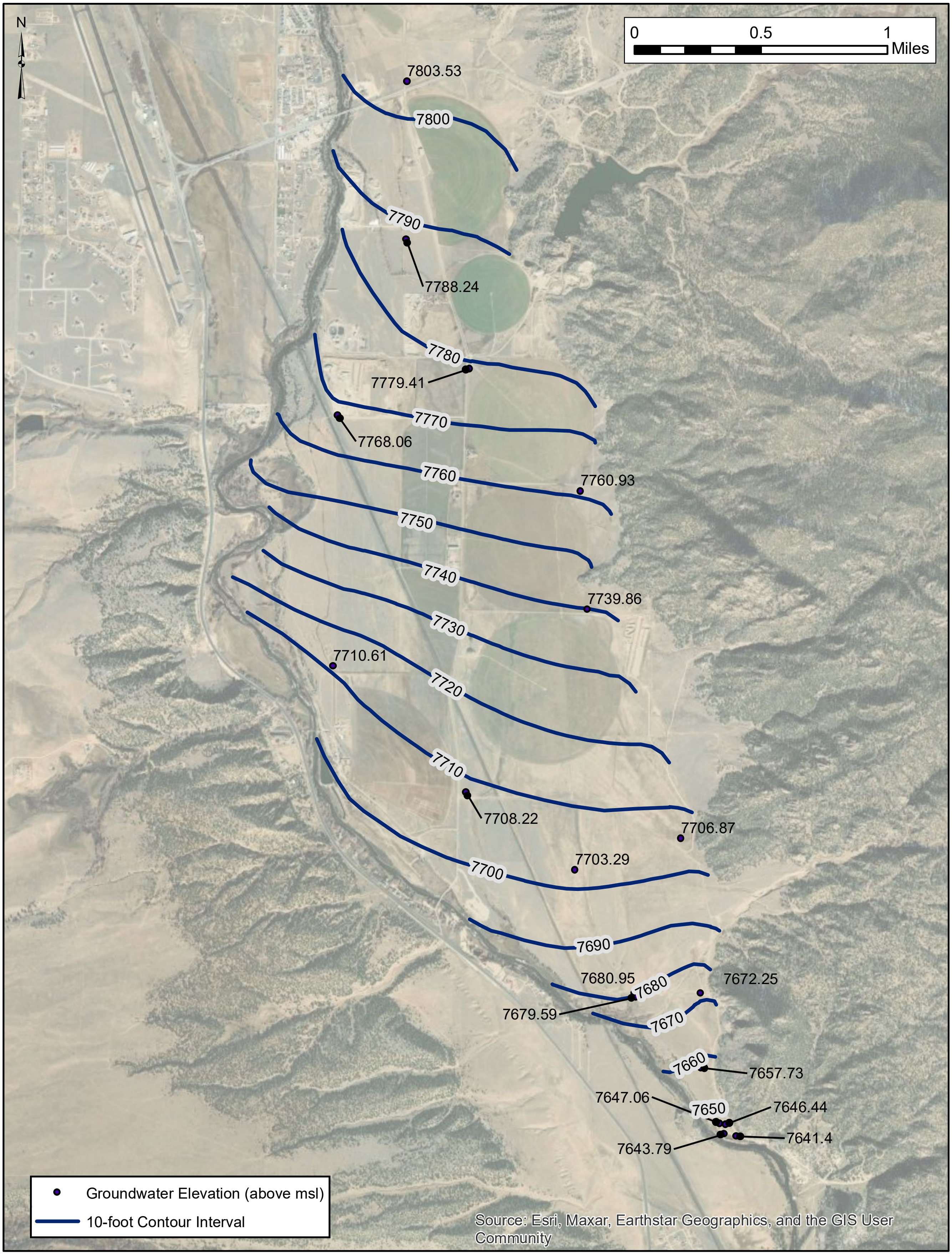


Figure 2.10 2023 Water Year Maximum Change in Water Levels



Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

Figure 2.11 Groundwater Contour Map, April 3-4, 2023

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

Figure 2.12 Groundwater Contour Map, October 17-18, 2023

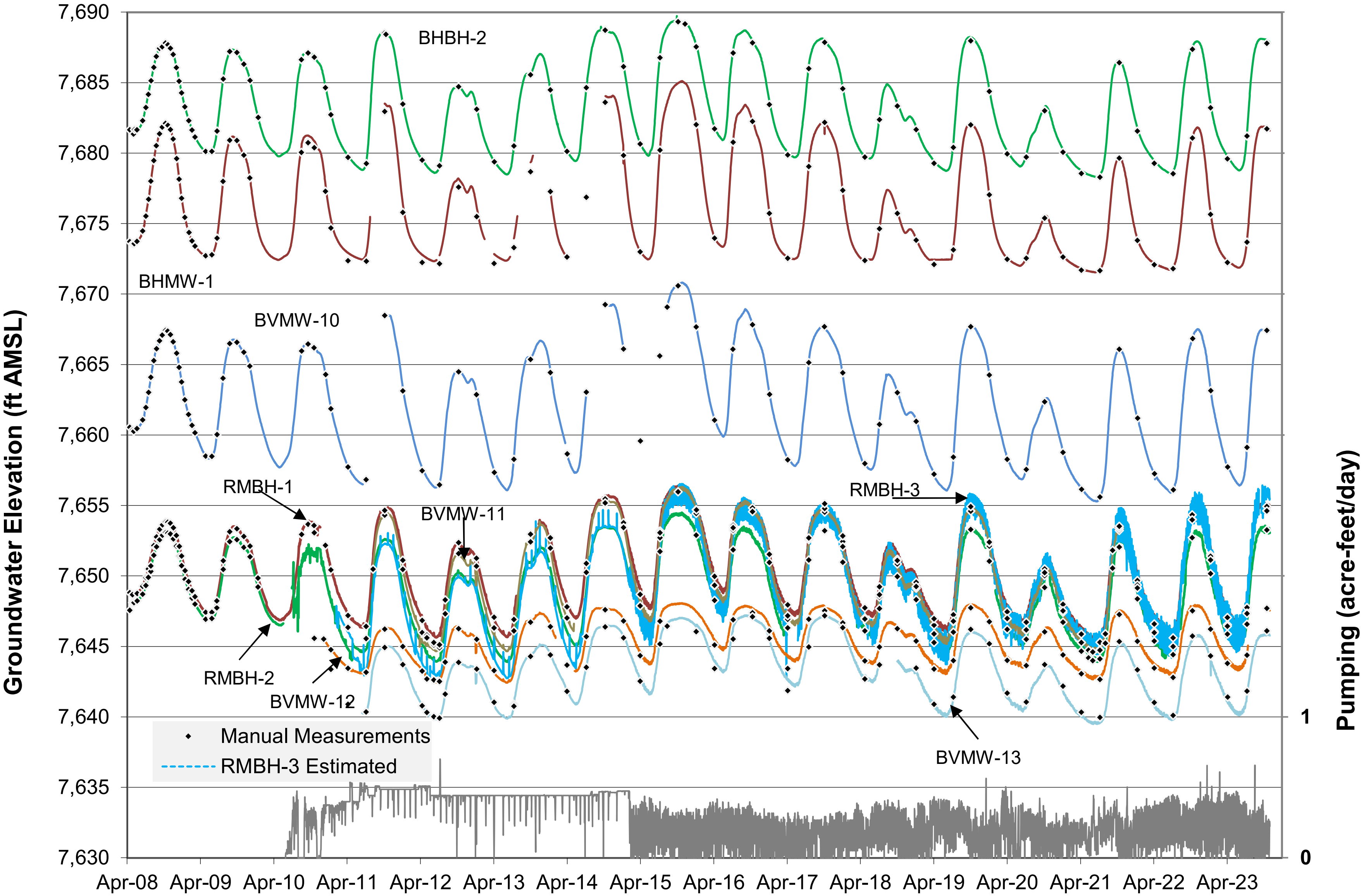


Figure 2.13 Groundwater Elevation Hydrographs, Ruby Mountain and Bighorn Springs Wells

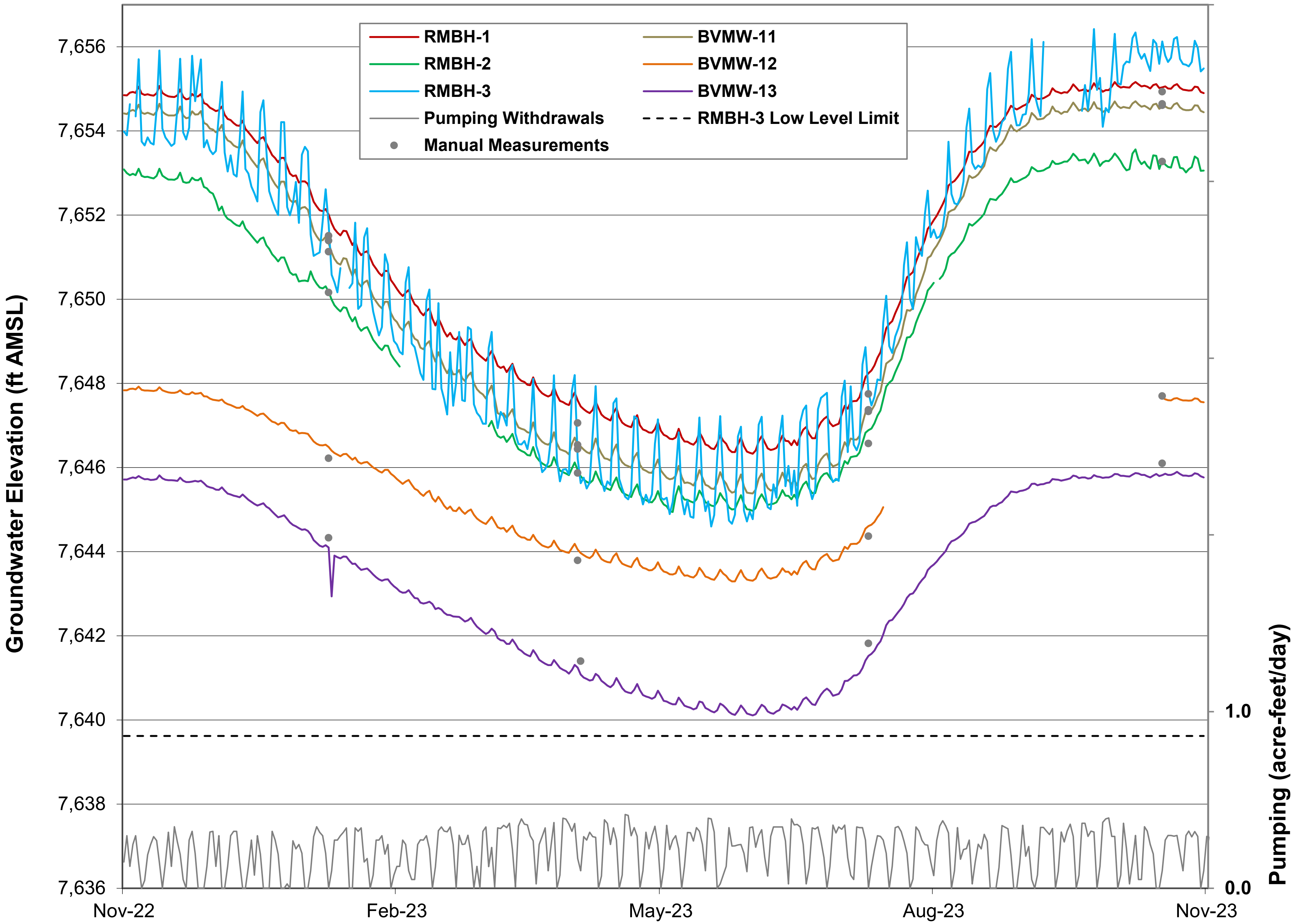


Figure 2.14 Groundwater Elevation Hydrographs for Water Year 2023, Ruby Mountain Springs Wells

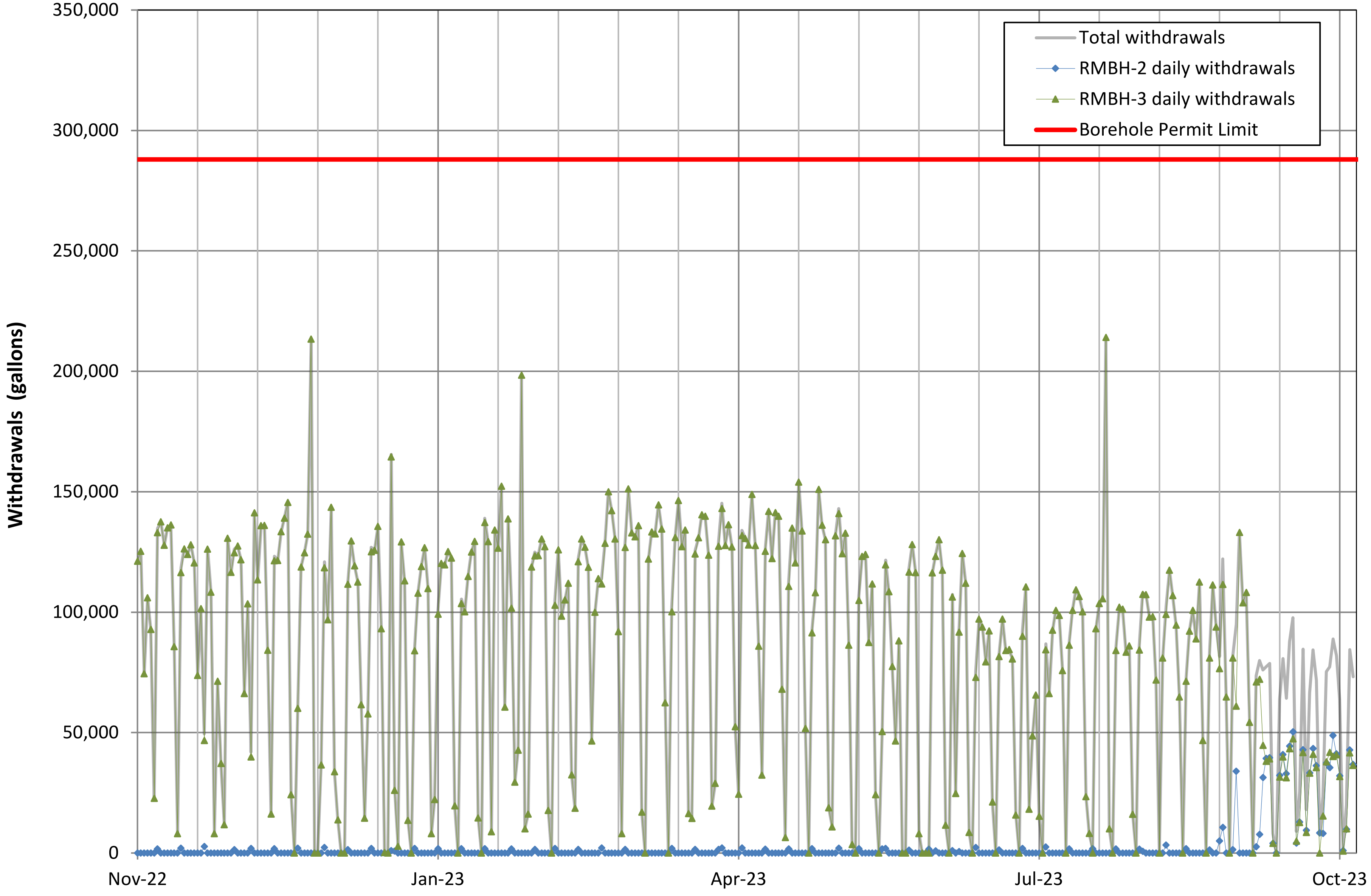


Figure 2.15 RMBH-2 and RMBH-3 Daily Groundwater Withdrawals

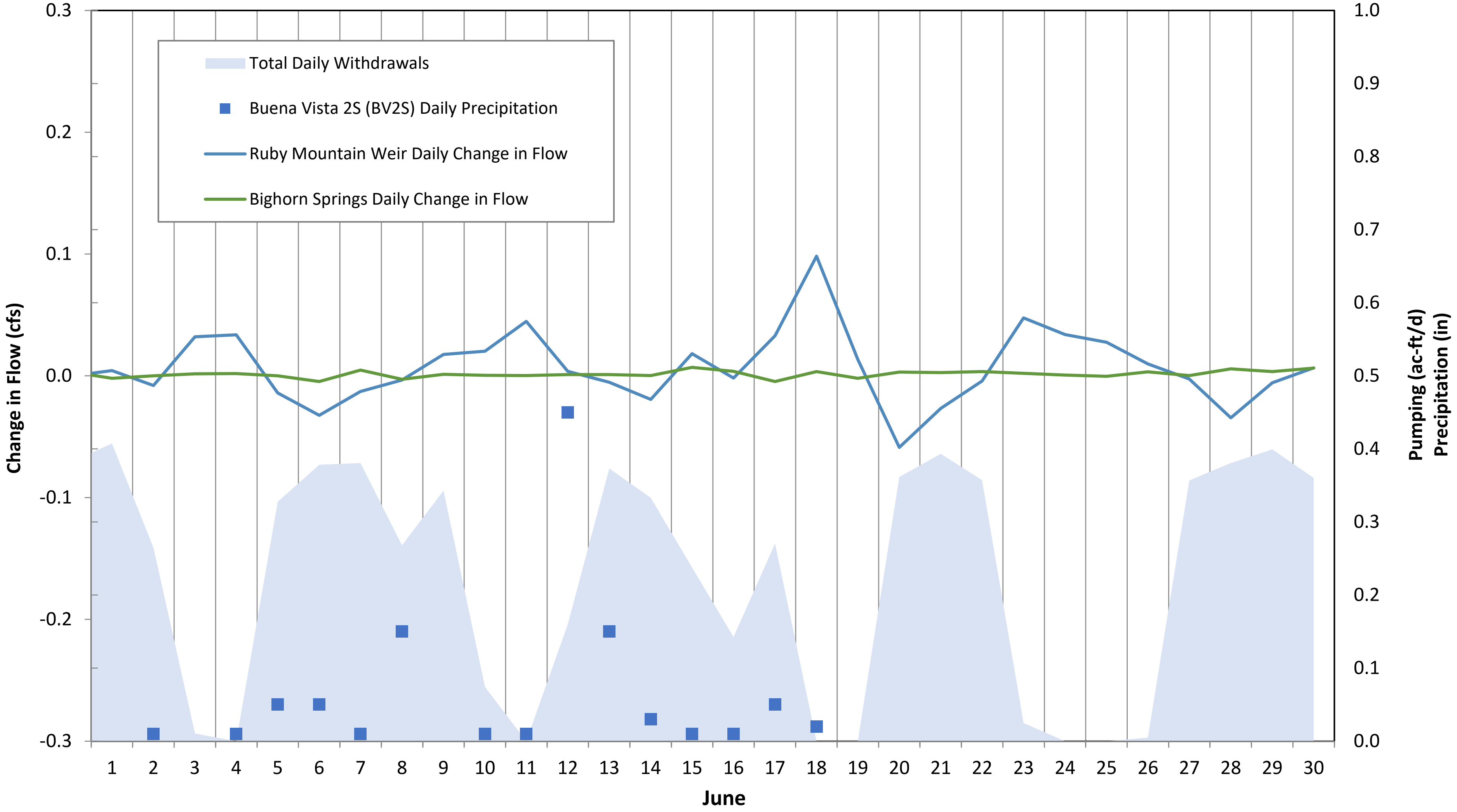


Figure 2.16 Flow Effects at Ruby Mountain Springs and Bighorn Springs from Withdrawals during 2023 Low Seasonal Water Levels

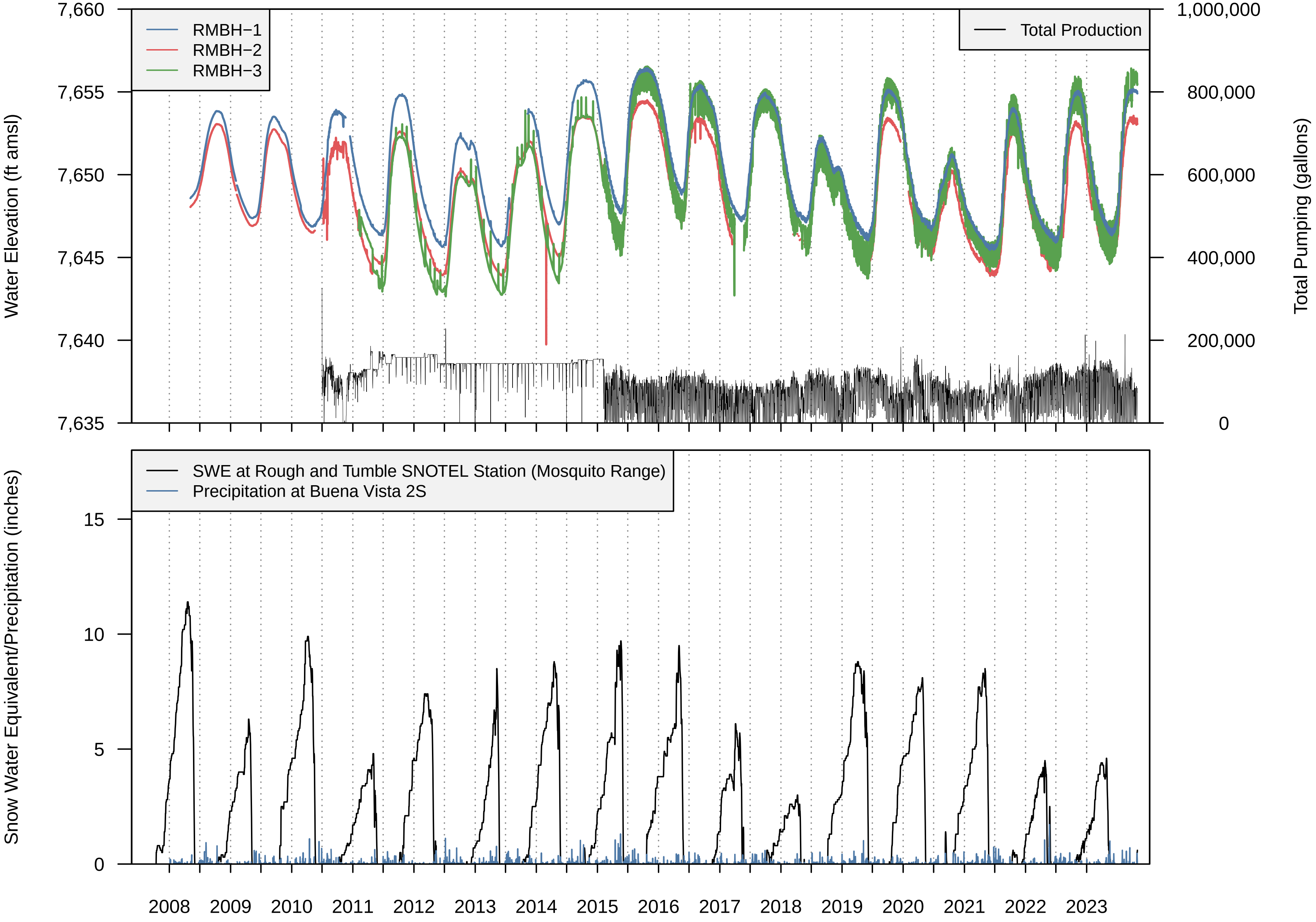


Figure 2.17. Water Levels, Production, and Precipitation at Ruby Mountain Springs

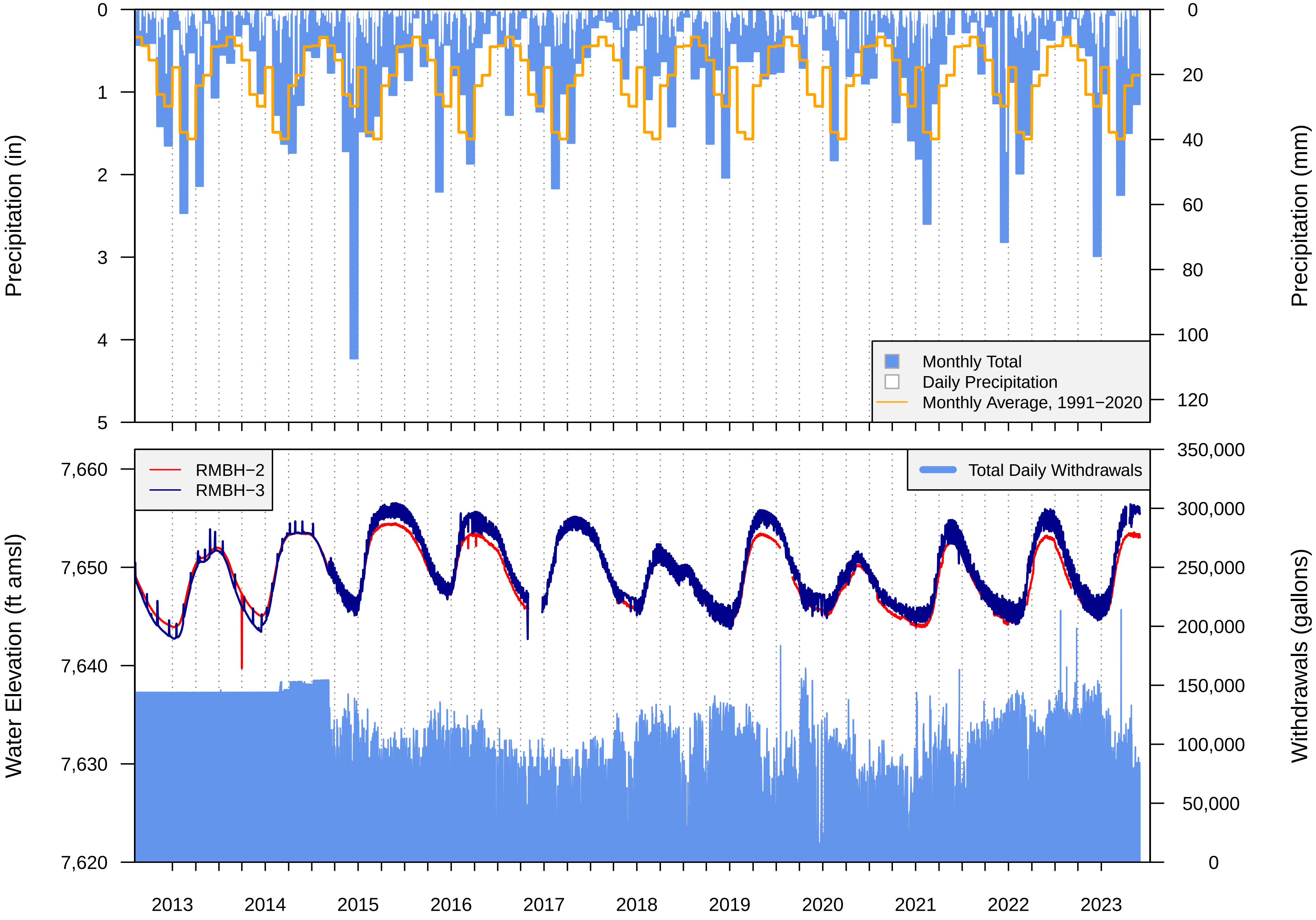


Figure 2.18. Graph of Water Levels, Production, and Precipitation at Ruby Mountain Springs

Tables

Table 1.1

Monitoring Locations in the Ruby Mountain Springs Network

Location ID	Station Description	Completion Date	Required per SGWMMP	Monitoring Parameters	Land Surface Elevation (ft amsl)	Top of Casing Elevation (ft amsl)	Total Well Depth (ft bgs)	Borehole Depth (ft bgs)
Up-gradient Monitoring Stations								
Well-A	groundwater monitoring station	unknown	Yes	WL, T	7864.82	7866.30	---	---
BVMW-01	groundwater monitoring station	4/11/2008	No	WL, T	7839.74	7841.72	73.0	73.0
BVMW-02	groundwater monitoring station	4/8/2008	Yes	WL, T	7826.57	7828.95	63.5	63.5
BVMW-03	groundwater monitoring station	4/16/2008	No	WL, T	7812.23	7814.47	59.0	59.0
BVMW-04	groundwater monitoring station	4/14/2008	No	WL, T	7815.73	7817.74	61.0	61.0
BVMW-05	groundwater monitoring station	4/9/2008	Yes	WL, T	7780.72	7783.07	51.0	51.0
BVMW-06	groundwater monitoring station	4/11/2008	No	WL, T	7773.93	7775.89	89.0	89.0
BVMW-07	groundwater monitoring station	4/16/2008	No	WL, T	7751.83	7753.80	59.0	59.0
BVMW-08	groundwater monitoring station	4/17/2008	Yes	WL, T	7746.01	7748.35	49.0	49.0
BVMW-09	groundwater monitoring station	4/17/2008	Yes	WL, T	7731.40	7733.42	43.0	43.0
Bighorn Springs Monitoring Stations								
BHBH-1	groundwater monitoring station	11/14/2007	No	WL, T	7701.14	7704.04	27.5	36.0
BHBH-2	groundwater monitoring station	12/5/2007	Yes	WL, T, C	7701.02	7703.14	37.0	45.0
BHBH-3	groundwater monitoring station	4/18/2008	No	WL, T	7705.04	7706.53	63.5	64.0
BHMW-1	groundwater monitoring station	12/5/2007	Yes	WL, T, C	7726.90	7729.59	61.0	72.0
BHPF-1	Bighorn Parshall Flume 1 - Upper Spring Discharge	9/26/2007	Yes	SW, T	---	---	---	---
BHPF-3	Bighorn Parshall Flume 3 - Combined Spring Discharge	8/26/2009	Yes	SW, T	---	---	---	---
Ruby Mountain Springs Monitoring Stations								
BVMW-10	groundwater monitoring station	4/8/2008	Yes	WL, T, C, pH	7687.18	7689.29	40.0	40.0
BVMW-11	groundwater monitoring station	8/5/2010	Yes	WL, T	7678.48	7681.74	34.5	34.5
BVMW-12	groundwater monitoring station	10/29/2010	Yes	WL, T	7647.30	7650.17	19.0	19.0
BVMW-13	groundwater monitoring station	10/23/2010	Yes	WL, T	7648.90	7651.21	20.0	20.0
RMBH-1	groundwater monitoring station	11/13/2007	Yes	WL, T	7678.23	7681.42	46.0	46.5
RMBH-2	production borehole	11/15/2007	Yes	WL, T, C, pH	7677.00	7678.43^{A}	54.5	66.0
RMBH-3	production borehole	10/10/2010	Yes	WL, T, C, pH	7678.64	7680.48^{A}	50.5	50.5
RMPF	Ruby Mountain Parshall Flume - Up-gradient Spring Discharge	6/25/2009	Yes	SW, T	---	---	---	---
RM-Weir	Ruby Mountain Weir - Combined Spring Discharge	9/26/2007	Yes	SW, T	7629.88	7632.96	---	---
Arkansas River Monitoring Stations								
AR-Nathrop	Arkansas River near Nathrop USGS 07091200	10/1/1964	Yes	Discharge	7350.00	---	---	---
AR-Salida	Arkansas River at Salida DWR 07091500	1/1/1909	Yes	Discharge	7050.45	---	---	---
Weather Monitoring Stations								
PPT-BV2S	Buena Vista 2S NWS CO1071	8/1/1899	Yes	Precip.	7,946	---	---	---
PPT-RM	Ruby Mountain Rain Gauge	7/1/2010	Yes	Precip.	7,678	---	---	---
Saint Elmo	NRCS SNOTEL Station	9/10/2007	No	Snowpack	10,540	---	---	---
Rough and Tumble	NRCS SNOTEL Station	8/14/1998	No	Snowpack	10,360	---	---	---

amsl	above mean sea level
bgs	below ground surface
ft	feet
in	inches
A	Top of tri-clamp elevation shown; the tri-clamp fitting represents the manual measurement point and is 0.16 feet above the top of finished flange.

SGWMMP	Surface- and Ground-Water Monitoring & Mitigation Plan
SW	surface/spring flow
T	temperature
WL	water level
C	conductivity

Table 1.2
Long-term Records for Buena Vista 2 S (051071)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	39.5	42.3	48.4	56.1	65.7	76.2	80.7	77.9	72.4	62.1	49.1	39.9	59.2
Average Min. Temperature (F)	9.7	13.0	19.6	25.9	34.0	41.4	47.1	45.4	38.0	28.4	18.6	10.6	27.6
Average Total Precipitation (inches)	0.39	0.49	0.68	0.93	1.01	0.67	1.68	1.63	0.85	0.74	0.48	0.44	10.0
Average Total SnowFall (inches)	5.83	7.24	8.24	7.42	2.93	0.10	0.00	0.00	0.84	3.42	5.52	6.25	47.8

Period of Record: 8/1/1889 to 12/31/2023

Table 1.3

Existing Wells in the Ruby Mountain Springs Area

Permit Number	Date Constructed	Use Description	Date Permitted	Well Yield (gpm)	Well Depth (ft)	Water Level (ft bgs)	Top of Screen Depth (ft)	Bottom of Screen Depth (ft)	Owner Name
54683	---	DOMESTIC	09/21/1954	15	60	35	45	60	WILLIS ALBERT R
150863	01/01/1920[A]	DOMESTIC	08/16/1991	2	280	148	180	280	HANSEN CECIL L.
148723	07/01/1956[A]	DOMESTIC	01/29/1988	15	300	124	200	300	MOLTZ V.P.
1-WCB	04/26/1961[A]	---	---	0	60	---	---	---	YENNE H
10308	11/24/1961[A]	DOMESTIC	---	20	61	35	---	---	HALL ERIKA
42834	09/20/1962[A]	DOMESTIC	---	20	45	30	---	---	LEONARD KYNTA
13866	06/01/1968[A]	DOMESTIC	12/30/1991	30	92	30	---	---	COLO ST REFORMATORY
82673	03/27/1969	HOUSEHOLD USE ONLY	03/19/1969	15	47	26	---	---	PELTIER LEO T
162640	09/24/1970[A]	DOMESTIC	---	30	60	---	---	---	HAKKORE INC
282096	11/30/1971[A]	STOCK	---	20	80	50	35	80	B & L COGAN LLC
217079	05/22/1972	COMMERCIAL	03/30/1972	15	82	48	62	82	BUENA VISTA SANITATION DIST
243937	05/24/1972	HOUSEHOLD USE ONLY	04/18/1972	6	337	175	215	315	JONES STEPHEN W & LYNDA
161186	10/20/1972	DOMESTIC	09/28/1972	20	35	---	---	---	HAKKORR INC
57763	04/16/1973	DOMESTIC	07/23/1997	15	55	30	40	55	WILLIS MRS IONE
8257	02/11/1977[A]	DOMESTIC	---	20	80	38	---	---	STATE REFORMATORY
48588-F	08/25/1987	COMMERCIAL	07/24/1987	15	50	30	38	50	WAUAGH ALAN R
123632	03/16/1990	DOMESTIC	04/05/1988	15	110	---	---	---	MOLTZ, V P.
57686-F	11/11/1999	COMMERCIAL	04/21/1999	15	110	70	70	110	MOLTZ V PAUL
37032	09/20/2002	DOMESTIC	09/10/2002	10	35	9	20	35	BENNETS CORBIN & JERIANNA
243168	1/28/2003	DOMESTIC	8/15/2002	---	320	---	240	320	MOLTZ V PAUL
243254	1/29/2003	DOMESTIC	8/20/2002	---	260	---	200	260	MOLTZ V PAUL
150424	04/04/2003	DOMESTIC	06/14/2002	15	58	---	---	---	DENOYER STACY & JANICE
64924	11/25/2009	HOUSEHOLD USE ONLY	11/10/2009	15	87	66	72	87	D & S INVESTMENTS
314799	1/15/2020	HOUSEHOLD USE ONLY	8/30/2019	2	295	98	---	---	BROWN, WILLIAM W.
312167--A	1/15/2020	DOMESTIC	2/25/2019	9	147	21	---	---	PETERSON, CHAD S.
326427	6/17/2022	HOUSEHOLD USE ONLY	4/20/2022	---	160	45	120	160	WILLIAMS, DAVID AND CHERRI
327461	10/13/2022	HOUSEHOLD USE ONLY	6/30/2022	---	100	50	60	100	KING, AMITY
330293	4/28/2023	HOUSEHOLD USE ONLY	4/26/2023	12	100	38	60	100	ALLIMAN, CHARLES

Notes:

Does not include wells located in the small portion of the Pinedale Aguifer that extends north of Highway 24.

[A] Date of first beneficial use; No well construction information available

Data downloaded from the Colorado Decision Support System website on February 23, 2016 and updated January 3, 2023

http://cdss.state.co.us/onlineTools

Table 2.1
Observed Precipitation at Ruby Mountain and Buena Vista-2S Weather Stations, 2023 Water Year and Long-Term Monthly Precipitation

Month	Observed Ruby Mountain Rain Gauge (inches)	Observed Buena Vista-2S (inches)	Historical Average, 2010-2022 Ruby Mountain Rain Gauge (inches)	Long-Term Average, 1991-2020 Buena Vista-2S (inches)
November-22	0.19	0.37	0.27	0.45
December-22	0.01	0.13	0.16	0.44
January-23	0.18	0.33	0.12	0.33
February-23	0.05	0.11	0.18	0.44
March-23	0.02[A]	0.46	0.30	0.61
April-23	NM[A]	0.56	0.54	1.03
May-23	NM[A]	2.99	1.02	1.17
June-23	NM[A]	1.02	0.32	0.70
July-23	0.08[A]	0.07	1.34	1.49
August-23	1.05	2.25	1.50	1.57
September-23	1.68	1.50	0.72	0.92
October-23	0.46	1.15	0.32	0.80
2023 Water Year	3.72[A]	10.94	6.79	9.95

NM = No monitoring due to datalogger malfunction.

[A] The total is an incomplete dataset due to missing data from March 2, 2023 through July 10, 2023. If historical data were used for these months, the total would be 8.62 inches.

Table 2.2a
Monthly Diversions for 2022 and 2023 Water Year

Diversion Structure and ID	Helena Ditch 1100535 (acre-feet)		Bray-Allen Ditch 1100537 (acre-feet)		Trout Creek Ditch-Cottonwood 1100649 (acre-feet)		Trout Creek Ditch 1100719 (acre-feet)		Cogan Ditch 1102078 [A] (acre-feet)		Trout Creek Reservoir 1103305 [C] (acre-feet)	
Water Year	**2022[B]**	**2023[D]**	**2022[B]**	**2023 [D]**	**2022[B]**	**2023 [D]**	**2022[B]**	**2023 [D]**	**2022[B]**	**2023 [D]**	**2022[B]**	**2023**
November	U	U	U	U	U	U	U	U	U	U	U	U
December	U	U	U	U	U	U	U	U	U	U	U	U
January	U	U	U	U	U	U	U	U	U	U	U	U
February	U	U	U	U	U	U	U	U	U	U	U	U
March	U	U	U	U	U	U	U	U	U	U	U	U
April	U	U	U	U	U	U	U	U	U	U	U	U
May	U	U	U	U	U	U	U	U	U	U	U	U
June	U	U	U	U	U	U	U	U	U	U	U	U
July	U	U	U	U	U	U	U	U	U	U	U	U
August	U	U	U	U	U	U	U	U	U	U	U	U
September	U	U	U	U	U	U	U	U	U	U	U	U
October	U	U	U	U	U	U	U	U	U	U	U	U

U No information available

[A] Cogan Ditch is operated under a futile call

[B] Provisional irrigation diversion data was not provided by DWR for 2022. The table will be updated when data becomes available.

[C] Reservoir maintained at full level in 2022 Water Year. Data not available for 2023.

[D] Provisional data has been posted on the DWR website for some structures in 2023, but according to correspondence from DWR, this data is still being reviewed for errors and consistency. The table will be updated when data becomes available.

Table 2.2b
Annual Diversions for 2008 through 2023 Water Year

Water Year	Helena Ditch 1100535 (acre-feet)	Bray-Allen Ditch 1100537 (acre-feet)	Trout Creek Ditch-Cottonwood 1100649 (acre-feet)	Trout Creek Ditch 1100719 (acre-feet)	Cogan Ditch 1102078 [A] (acre-feet)	Trout Creek Reservoir 1103305 (acre-feet)	Total
2008	2,414	0 [D]	6,231	U	197	63	8,905 [F]
2009	1,488	1,237	6,434	1,699	544	9	11,412
2010	2,488	1,395	4,521	NM [E]	0	U	8,404 [F]
2011	2,406	1,126	5,815	373	377	U	10,096
2012	129	873	6,082	403	353	U	7,840
2013	678	1,488	5,085	456	483	U [C]	8,190
2014	2,867	1,570	6,025	U	U	U [C]	10,462 [F]
2015	2,257	984	5,411	353	633	U [C]	9,637
2016	2,806	1,070	4,302	288	U	U	8,465
2017	4,331	2,408	4,270	369	285	U	11,663
2018	1,570	944	5,018	349	170	U [C]	8,051
2019	2,266	1,338	5,287	317	374	U [C]	9,584
2020	764	938	3,616	375	337	U [C]	6,030
2021	1644	0	4,302	282	340	U [C]	6,567
2022[B]	U	U	U	U	U	U [C]	U
2023[G]	U	U	U	U	U	U	U

NM Not Measured

U No information available

[A] Cogan Ditch is operated under a futile call

[B] Provisional irrigation diversion data was not provided by DWR for 2022. The table will be updated when data becomes available.

[C] Reservoir maintained at full level

[D] Water available, but not taken; headgate not turned on for entire season. According to information provided by the DWR, no diversion flow data is available for the Bray-Allen Ditch for the 2008 irrigation season because the flume washed out in August of 2007.

[E] Water taken during the water year but no data available; recording equipment failed

[F] Incomplete record

[G] Provisional data has been posted on the DWR website for some structures in 2023, but according to correspondence from DWR, this data is still being reviewed for errors and consistency. The table will be updated when data becomes available.

Table 2.3a
Ruby Mountain Springs Surface Water Monthly and Annual Flows, 2023 Water Year

Month	Ruby Mountain Upgradient Flume (acre-feet)	Ruby Mountain Weir (acre-feet)	*Estimated Spring Discharge (acre-feet)*
November-22	17	285	268
December-22	13	254	240
January-23	8	177	169
February-23	3	110	107
March-23	0	90	90
April-23	0	70	70
May-23	0	67	67
June-23	0	70	70
July-23	0	123	123
August-23	5	229 [B]	224
September-23	9	272 [B]	263
October-23	9	289 [B]	280
2023 Water Year	**64**[A]	**2,034**[B]	**1,970** [C]

[A] Based on field observations, measurements were affected by a flow bypass in 2023 above the upgradient flume. Conveyance channel water is discharging directly to the Arkansas River instead of being measured at the flume.

[B] Estimated flows shown; measured flows were 260 for August, 277 for September, and 288 for October. Total measured flow at Ruby Mountain Weir was 2,070 acre-feet.

[C] Measured total spring discharge for the 2023 water year was 2,006 acre-feet.

Table 2.3b
Ruby Mountain Springs Surface Water Annual Flows

Water Year	***Estimated Spring Discharge (acre-feet)***
2008	2,461
2009	2,172
2010	1,535
2011	1,297
2012	1,252
2013	1,399
2014	1,945
2015	2,381
2016	2,720
2017	2,089
2018	1,666
2019	1,573
2020	1,501
2021	1,106
2022	1,480
2023	**1,970**

Table 2.4a
Bighorn Springs Surface Water Monthly and Annual Flows, 2023 Water Year

Month	Bighorn Parshall Flume – 1 (acre-feet)	Bighorn Parshall Flume – 3 (acre-feet)
November-22	62	96
December-22	37	83[B]
January-23	21	48[B]
February-23	12	35
March-23	10	35
April-23	6	14
May-23	4	12
June-23	4	11
July-23	11	22
August-23	42	54
September-23	74	78
October-23	72[A]	98
2023 Water Year	**356[A]**	**585[B]**

[A] Due to severe weather, measurements for BHPF-1 are not available for October 25 through October 31, 2023. Flow on October 25 through October 31, 2023 was estimated by interpolation between October 24 and November 10, 2023.

[B] Due to a datalogger failure, measurements for BHPF-3 are not available for December 23, 2022 through January 8, 2023. Flow on December 23, 2022 through January 8, 2022, was estimated by interpolation between December 22, 2022 and January 9, 2023.

Table 2.4b
Bighorn Springs Surface Water Annual Flows

Water Year	***Estimated Spring Discharge (acre-feet)$^{A, B}$***
2008	565
2009	377
2010	447
2011	482
2012	352
2013	281
2014	589
2015	918
2016	1,176
2017	759
2018	560
2019	547
2020	551
2021	379
2022	466
2023	**585**

[A] Spring discharge is estimated based on flow at Bighorn Parshall Flume 3.

[B] Based on field observations, bypass flow has occurred intermittently during high flow conditions since October 2013.

Table 2.5
Production Withdrawals, 2023 Water Year

Month 2023 Water Year	**RMBH-2 Withdrawals (acre-feet)**	**RMBH-3 Withdrawals (acre-feet)**	**Total Withdrawals (acre-feet)**
November-22	0.025	8.832	8.856
December-22	0.025	8.788	8.813
January-23	0.028	7.160	7.187
February-23	0.021	7.682	7.703
March-23	0.022	9.798	9.820
April-23	0.022	8.784	8.806
May-23	0.029	10.064	10.093
June-23	0.028	6.582	6.611
July-23	0.030	5.562	5.592
August-23	0.023	7.259	7.282
September-23	0.177	7.140	7.317
October-23	2.485	2.875	5.360
2023 Water Year	**2.915**	**90.525**	**93.440**

Appendix A

Tables of Average Daily Observed Flows in the Arkansas River

Arkansas River at Salida
Mean Discharge (cfs)

Day	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sept-23	Oct-23
1	383	293	237	258	256	273	366	1920	1900	952	737	256
2	381	294	238	270	272	279	381	2100	1850	984	719	266
3	381	280	225	274	257	288	402	2080	1840	986	720	300
4	386	284	238	280	254	255	456	1980	1820	967	708	283
5	367	286	211	293	258	217	495	1880	1850	915	641	270
6	379	285	231	280	257	200	525	1850	1760	888	518	256
7	375	282	274	296	259	202	533	1940	1520	855	449	250
8	370	276	291	273	260	203	597	1970	1300	777	400	245
9	360	275	288	290	257	201	620	1950	1270	751	392	239
10	356	274	298	268	260	205	651	1830	1230	738	345	233
11	341	279	296	275	268	224	746	1850	1200	733	304	230
12	318	268	292	303	266	273	743	1960	1150	719	286	236
13	325	305	315	280	262	279	713	1990	1110	741	263	250
14	320	272	291	274	281	286	776	1720	1160	718	256	258
15	292	280	295	324	307	270	820	1790	1110	691	338	262
16	282	244	289	290	321	243	869	2160	1050	673	368	275
17	280	200	291	280	309	230	973	2370	990	703	321	275
18	292	141	289	293	294	232	1050	2240	958	699	296	271
19	286	141	289	285	291	244	1110	2160	1090	692	291	268
20	281	146	276	281	302	235	1130	2380	1120	677	276	263
21	280	192	287	277	303	214	1150	2470	1110	667	262	258
22	304	194	274	274	299	239	1080	2440	1070	694	254	258
23	301	180	292	270	296	264	1100	2410	1040	706	250	256
24	273	220	273	257	293	303	1250	2260	1020	697	245	253
25	302	268	265	257	287	326	1280	2140	1010	704	242	258
26	276	307	268	261	279	356	1280	1970	996	793	235	284
27	295	308	269	254	288	349	1360	2030	985	826	227	295
28	282	281	282	256	287	353	1440	2170	957	821	228	328
29	290	253	272		296	346	1570	2080	944	813	246	359
30	278	244	271		287	349	1760	2020	932	789	247	326
31		241	280		280		1920		940	771		327

Arkansas River near Nathrop
Mean Discharge (cfs)

Day	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sept-23	Oct-23
1	ND	ND	ND	ND	ND	244	365	2020	1890	950	708	ND
2	ND	ND	ND	ND	ND	253	379	2200	1860	980	695	ND
3	ND	ND	ND	ND	ND	257	416	2140	1840	974	695	ND
4	ND	ND	ND	ND	ND	228	478	2020	1830	941	683	ND
5	ND	ND	ND	ND	ND	219	503	1950	1840	908	606	ND
6	ND	ND	ND	ND	ND	209	539	1930	1710	882	501	ND
7	ND	ND	ND	ND	ND	208	554	2030	1440	846	436	ND
8	ND	ND	ND	ND	ND	213	598	2050	1240	774	409	ND
9	ND	ND	ND	ND	ND	211	614	2040	1210	751	400	ND
10	ND	ND	ND	ND	ND	212	655	1910	1170	740	372	246
11	ND	ND	ND	ND	ND	232	724	1940	1130	724	366	ND
12	ND	ND	ND	ND	ND	264	701	2060	1080	720	362	ND
13	ND	ND	ND	ND	ND	272	690	2020	1090	736	358	ND
14	ND	ND	ND	ND	ND	274	743	1770	1150	716	356	ND
15	ND	ND	ND	ND	ND	253	808	1890	1100	691	396	ND
16	ND	ND	ND	ND	ND	231	843	2280	1050	680	376	ND
17	ND	ND	ND	ND	ND	230	951	2460	986	700	363	ND
18	ND	ND	ND	ND	ND	235	1010	2310	963	687	360	ND
19	ND	ND	ND	ND	ND	248	1060	2260	1120	680	356	ND
20	ND	ND	ND	ND	ND	230	1090	2480	1120	672	356	ND
21	ND	ND	ND	ND	ND	215	1100	2530	1110	664	356	ND
22	ND	ND	ND	ND	ND	254	1030	2520	1080	699	353	ND
23	ND	ND	ND	ND	ND	259	1080	2450	1050	700	353	ND
24	ND	ND	ND	ND	ND	310	1250	2300	1030	690	353	ND
25	ND	ND	ND	ND	ND	326	1400	2150	1020	708	353	ND
26	ND	ND	ND	ND	ND	333	1350	2010	1000	777	351	ND
27	ND	ND	ND	ND	260	339	1430	2120	993	812	349	ND
28	ND	ND	ND	ND	ND	345	1530	2210	951	797	349	ND
29	ND	ND	ND		ND	335	1670	2120	939	790	349	ND
30	ND	ND	ND		ND	345	1900	2030	930	760	349	ND
31		ND	ND		ND		2030		937	739		ND

ND= No data. Site is operated seasonally.

Appendix B

Tables of Average Daily Surface Water Flows at Ruby Mountain Springs

Ruby Mountain Upgradient Flume
Average Daily Flows (cfs)

Day	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sept-23	Oct-23
1	0.35	0.34	0.16	0.09	0.03	0.00	0.00	0.00	0.00	0.03	0.12	0.15
2	0.35	0.33	0.16	0.09	0.02	0.00	0.00	0.00	0.00	0.03	0.13	0.15
3	0.35	0.27	0.16	0.09	0.01	0.00	0.00	0.00	0.00	0.04	0.13	0.14
4	0.35	0.27	0.15	0.09	0.00	0.00	0.00	0.00	0.00	0.04	0.13	0.15
5	0.35	0.26	0.15	0.09	0.00	0.00	0.00	0.00	0.00	0.05	0.13	0.14
6	0.36	0.26	0.14	0.09	0.00	0.00	0.00	0.00	0.00	0.05	0.13	0.14
7	0.35	0.26	0.14	0.08	0.00	0.00	0.00	0.00	0.00	0.06	0.13	0.14
8	0.34	0.25	0.14	0.08	0.00	0.00	0.00	0.00	0.00	0.06	0.13	0.14
9	0.35	0.25	0.14	0.07	0.00	0.00	0.00	0.00	0.00	0.06	0.13	0.14
10	0.36	0.24	0.13	0.07	0.00	0.00	0.00	0.00	0.00	0.06	0.13	0.14
11	0.36	0.24	0.13	0.07	0.00	0.00	0.00	0.00	0.00	0.06	0.14	0.14
12	0.36	0.24	0.14	0.07	0.00	0.00	0.00	0.00	0.00	0.06	0.14	0.14
13	0.37	0.23	0.14	0.07	0.00	0.00	0.00	0.00	0.00	0.06	0.14	0.14
14	0.36	0.23	0.14	0.07	0.00	0.00	0.00	0.00	0.00	0.07	0.14	0.14
15	0.35	0.22	0.14	0.06	0.00	0.00	0.00	0.00	0.00	0.07	0.15	0.14
16	0.35	0.21	0.14	0.06	0.00	0.00	0.00	0.00	0.00	0.08	0.15	0.14
17	0.35	0.20	0.14	0.05	0.00	0.00	0.00	0.00	0.00	0.08	0.16	0.14
18	0.35	0.20	0.14	0.05	0.00	0.00	0.00	0.00	0.00	0.09	0.16	0.14
19	0.35	0.20	0.14	0.05	0.00	0.00	0.00	0.00	0.00	0.09	0.15	0.13
20	0.35	0.20	0.13	0.04	0.00	0.00	0.00	0.00	0.00	0.09	0.15	0.13
21	0.35	0.20	0.13	0.04	0.00	0.00	0.00	0.00	0.00	0.10	0.16	0.14
22	0.35	0.19	0.13	0.04	0.00	0.00	0.00	0.00	0.00	0.10	0.16	0.14
23	0.35	0.19	0.13	0.04	0.00	0.00	0.00	0.00	0.01	0.10	0.16	0.14
24	0.35	0.19	0.12	0.04	0.00	0.00	0.00	0.00	0.01	0.10	0.16	0.14
25	0.35	0.19	0.12	0.04	0.00	0.00	0.00	0.00	0.01	0.11	0.16	0.13
26	0.35	0.18	0.11	0.04	0.00	0.00	0.00	0.00	0.01	0.11	0.15	0.13
27	0.36	0.17	0.11	0.03	0.00	0.00	0.00	0.00	0.02	0.12	0.15	0.13
28	0.34	0.17	0.11	0.03	0.00	0.00	0.00	0.00	0.02	0.12	0.15	0.14
29	0.34	0.16	0.10		0.00	0.00	0.00	0.00	0.02	0.12	0.15	0.14
30	0.34	0.16	0.10		0.00	0.00	0.00	0.00	0.02	0.12	0.14	0.13
31		0.15	0.09		0.00		0.00		0.03	0.12		0.13

Ruby Mountain Weir
Average Daily Flows (cfs)

Day	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sept-23	Oct-23
1	4.99	4.50	3.60	2.31	1.66	1.29	1.12	1.06	1.31	3.05	4.37	4.69
2	4.97	4.49	3.57	2.28	1.63	1.33	1.09	1.05	1.37	3.11	4.39	4.68
3	4.97	4.50	3.48	2.24	1.60	1.30	1.09	1.08	1.37	3.16	4.46	4.65
4	4.98	4.56	3.37	2.25	1.62	1.25	1.09	1.12	1.38	3.20	7.15	4.64
5	4.89	4.46	3.30	2.27	1.65	1.22	1.07	1.10	1.43	3.23	4.55	4.65
6	4.92	4.39	3.26	2.22	1.64	1.21	1.08	1.07	1.42	3.35	4.56	4.65
7	4.85	4.37	3.24	2.15	1.58	1.20	1.12	1.06	1.43	3.38	4.63	4.70
8	4.84	4.33	3.26	2.13	1.56	1.20	1.10	1.05	1.46	3.42	4.61	4.71
9	4.81	4.29	3.15	2.07	1.56	1.24	1.08	1.07	1.54	3.46	4.62	4.69
10	4.79	4.28	3.00	2.04	1.53	1.23	1.12	1.09	1.59	3.44	4.67	4.64
11	4.79	4.34	2.92	2.05	1.54	1.19	1.21	1.14	1.66	3.69	4.64	4.65
12	4.81	4.26	2.88	2.08	1.57	1.17	1.07	1.14	1.70	3.79	4.56	4.64
13	4.90	4.19	2.84	2.02	1.53	1.15	1.09	1.14	1.76	4.66	4.52	4.59
14	4.80	4.19	2.89	1.95	1.49	1.14	1.14	1.12	1.82	4.77	4.52	4.64
15	4.78	4.16	2.88	1.98	1.47	1.15	1.16	1.13	1.89	3.68	4.65	4.69
16	4.77	4.10	2.83	1.95	1.45	1.19	1.07	1.13	2.00	3.71	4.54	4.66
17	4.77	4.15	2.77	1.89	1.43	1.16	1.06	1.17	2.08	3.75	4.57	4.69
18	4.75	4.18	2.78	1.85	1.41	1.13	1.05	1.26	2.12	3.79	4.57	4.78
19	4.77	4.11	2.71	1.85	1.46	1.12	1.06	1.28	2.21	3.82	4.57	4.79
20	4.84	4.05	2.65	1.84	1.43	1.11	1.07	1.22	2.23	3.90	4.57	4.77
21	4.78	3.98	2.66	1.83	1.40	1.10	1.09	1.19	2.24	4.56	4.58	4.80
22	4.75	3.96	2.69	1.82	1.38	1.14	1.09	1.19	2.31	10.31	4.55	4.82
23	4.72	3.90	2.63	1.79	1.36	1.17	1.08	1.24	2.42	7.13	4.54	4.77
24	4.66	3.93	2.56	1.76	1.35	1.14	1.05	1.27	2.45	6.95	4.61	4.72
25	4.65	3.93	2.51	1.77	1.34	1.12	1.04	1.30	2.47	4.11	4.59	4.70
26	4.64	3.84	2.47	1.82	1.37	1.11	1.04	1.31	2.56	4.14	4.61	4.70
27	4.68	3.75	2.44	1.77	1.35	1.10	1.06	1.30	2.67	4.22	4.56	4.70
28	4.58	3.70	2.47	1.69	1.32	1.10	1.10	1.27	2.74	4.23	4.58	4.42
29	4.54	3.68	2.49		1.31	1.11	1.08	1.26	2.79	4.21	4.59	4.76
30	4.51	3.63	2.41		1.29	1.15	1.06	1.27	2.88	4.29	4.61	4.70
31		3.63	2.36		1.28		1.06		2.96	4.36		4.72

ND = No data collected due to sensor issues.

Appendix C

Tables of Average Daily Surface Water Flows at Bighorn Springs

BHPF-1
Average Daily Flows (cfs)

Day	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sept-23	Oct-23
1	1.38	0.83	0.42	0.27	0.18	0.14	0.08	0.06	0.09	0.38	1.13	1.17
2	1.41	0.82	0.41	0.27	0.17	0.14	0.08	0.06	0.09	0.37	1.16	1.18
3	1.35	0.80	0.40	0.27	0.17	0.13	0.08	0.06	0.09	0.38	1.20	1.18
4	1.21	0.79	0.39	0.27	0.17	0.10	0.08	0.06	0.09	0.39	1.21	1.17
5	1.28	0.76	0.39	0.26	0.18	0.10	0.07	0.06	0.10	0.41	1.26	1.17
6	1.20	0.74	0.38	0.27	0.17	0.10	0.07	0.06	0.10	0.42	1.33	1.17
7	1.02	0.73	0.38	0.26	0.17	0.10	0.07	0.06	0.11	0.44	1.35	1.15
8	1.03	0.71	0.37	0.25	0.17	0.10	0.07	0.06	0.11	0.45	1.37	1.16
9	1.03	0.69	0.37	0.25	0.17	0.10	0.07	0.06	0.12	0.47	1.38	1.17
10	1.03	0.68	0.36	0.24	0.17	0.10	0.07	0.06	0.12	0.50	1.37	1.17
11	1.03	0.66	0.36	0.24	0.17	0.10	0.08	0.06	0.13	0.52	1.34	1.18
12	1.03	0.64	0.35	0.23	0.17	0.10	0.07	0.06	0.13	0.55	1.31	1.17
13	1.04	0.62	0.35	0.23	0.16	0.10	0.07	0.06	0.14	0.57	1.30	1.16
14	1.03	0.60	0.34	0.22	0.17	0.10	0.07	0.06	0.15	0.58	1.30	1.17
15	1.02	0.59	0.33	0.22	0.16	0.09	0.07	0.07	0.16	0.61	1.37	1.17
16	1.01	0.57	0.33	0.21	0.16	0.10	0.07	0.07	0.16	0.64	1.26	1.17
17	1.00	0.56	0.32	0.21	0.16	0.09	0.07	0.07	0.17	0.66	1.25	1.16
18	1.02	0.55	0.32	0.21	0.16	0.09	0.07	0.07	0.18	0.69	1.25	1.15
19	1.01	0.54	0.31	0.20	0.16	0.09	0.07	0.07	0.19	0.72	1.24	1.16
20	1.00	0.53	0.31	0.20	0.16	0.09	0.07	0.07	0.20	0.75	1.23	1.18
21	0.99	0.53	0.30	0.20	0.15	0.09	0.07	0.07	0.21	0.78	1.21	1.20
22	0.98	0.52	0.30	0.19	0.15	0.09	0.07	0.07	0.22	0.81	1.20	1.21
23	0.97	0.50	0.30	0.19	0.15	0.09	0.07	0.07	0.24	0.85	1.19	1.21
24	0.95	0.50	0.29	0.19	0.15	0.09	0.07	0.07	0.25	0.90	1.17	1.21
25	0.94	0.52	0.29	0.19	0.15	0.09	0.07	0.07	0.26	0.98	1.17	1.20
26	0.94	0.53	0.29	0.18	0.15	0.09	0.06	0.07	0.28	0.98	1.18	1.18
27	0.94	0.51	0.28	0.18	0.15	0.09	0.06	0.08	0.30	0.99	1.18	1.17
28	0.93	0.45	0.28	0.18	0.14	0.09	0.06	0.08	0.31	1.01	1.16	1.15
29	0.88	0.44	0.28		0.15	0.08	0.06	0.08	0.33	1.05	1.15	1.14
30	0.84	0.43	0.27		0.14	0.08	0.06	0.08	0.34	1.08	1.16	1.13
31		0.42	0.27		0.14		0.06		0.36	1.10		1.11

BHPF-3
Average Daily Flows (cfs)

Day	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sept-23	Oct-23
1	1.38	0.83	0.42	0.27	0.18	0.14	0.08	0.06	0.09	0.38	1.13	1.17
2	1.41	0.82	0.41	0.27	0.17	0.14	0.08	0.06	0.09	0.37	1.16	1.18
3	1.35	0.80	0.40	0.27	0.17	0.13	0.08	0.06	0.09	0.38	1.20	1.18
4	1.21	0.79	0.39	0.27	0.17	0.10	0.08	0.06	0.09	0.39	1.21	1.17
5	1.28	0.76	0.39	0.26	0.18	0.10	0.07	0.06	0.10	0.41	1.26	1.17
6	1.20	0.74	0.38	0.27	0.17	0.10	0.07	0.06	0.10	0.42	1.33	1.17
7	1.02	0.73	0.38	0.26	0.17	0.10	0.07	0.06	0.11	0.44	1.35	1.15
8	1.03	0.71	0.37	0.25	0.17	0.10	0.07	0.06	0.11	0.45	1.37	1.16
9	1.03	0.69	0.37	0.25	0.17	0.10	0.07	0.06	0.12	0.47	1.38	1.17
10	1.03	0.68	0.36	0.24	0.17	0.10	0.07	0.06	0.12	0.50	1.37	1.17
11	1.03	0.66	0.36	0.24	0.17	0.10	0.08	0.06	0.13	0.52	1.34	1.18
12	1.03	0.64	0.35	0.23	0.17	0.10	0.07	0.06	0.13	0.55	1.31	1.17
13	1.04	0.62	0.35	0.23	0.16	0.10	0.07	0.06	0.14	0.57	1.30	1.16
14	1.03	0.60	0.34	0.22	0.17	0.10	0.07	0.06	0.15	0.58	1.30	1.17
15	1.02	0.59	0.33	0.22	0.16	0.09	0.07	0.07	0.16	0.61	1.37	1.17
16	1.01	0.57	0.33	0.21	0.16	0.10	0.07	0.07	0.16	0.64	1.26	1.17
17	1.00	0.56	0.32	0.21	0.16	0.09	0.07	0.07	0.17	0.66	1.25	1.16
18	1.02	0.55	0.32	0.21	0.16	0.09	0.07	0.07	0.18	0.69	1.25	1.15
19	1.01	0.54	0.31	0.20	0.16	0.09	0.07	0.07	0.19	0.72	1.24	1.16
20	1.00	0.53	0.31	0.20	0.16	0.09	0.07	0.07	0.20	0.75	1.23	1.18
21	0.99	0.53	0.30	0.20	0.15	0.09	0.07	0.07	0.21	0.78	1.21	1.20
22	0.98	0.52	0.30	0.19	0.15	0.09	0.07	0.07	0.22	0.81	1.20	1.21
23	0.97	0.50	0.30	0.19	0.15	0.09	0.07	0.07	0.24	0.85	1.19	1.21
24	0.95	0.50	0.29	0.19	0.15	0.09	0.07	0.07	0.25	0.90	1.17	1.21
25	0.94	0.52	0.29	0.19	0.15	0.09	0.07	0.07	0.26	0.98	1.17	1.20
26	0.94	0.53	0.29	0.18	0.15	0.09	0.06	0.07	0.28	0.98	1.18	1.18
27	0.94	0.51	0.28	0.18	0.15	0.09	0.06	0.08	0.30	0.99	1.18	1.17
28	0.93	0.45	0.28	0.18	0.14	0.09	0.06	0.08	0.31	1.01	1.16	1.15
29	0.88	0.44	0.28		0.15	0.08	0.06	0.08	0.33	1.05	1.15	1.14
30	0.84	0.43	0.27		0.14	0.08	0.06	0.08	0.34	1.08	1.16	1.13
31		0.42	0.27		0.14		0.06		0.36	1.10		1.11

Appendix D

Tables of Average Daily Groundwater Elevation, Temperature and Conductance in Monitoring Wells and Production Wells

Tables of Average Daily Groundwater Elevation

BHBH-2
Water Levels (feet)

Day	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sept-23	Oct-23
1	7687.92	7687.16	7684.24	7681.87	7680.65	7679.83	7679.20	7678.77	7680.01	7685.60	7687.91	7688.08
2	7687.93	7687.10	7684.14	7681.81	7680.62	7679.81	7679.19	7678.77	7680.14	7685.74	7687.93	7688.09
3	7687.94	7687.01	7684.03	7681.75	7680.59	7679.78	7679.17	7678.78	7680.27	7685.87	7687.96	7688.08
4	7687.93	7686.94	7683.93	7681.70	7680.56	7679.78	7679.14	7678.79	7680.40	7685.99	7687.98	7688.08
5	7687.93	7686.88	7683.83	7681.64	7680.53	7679.75	7679.12	7678.80	7680.55	7686.11	7687.99	7688.06
6	7687.92	7686.80	7683.73	7681.59	7680.49	7679.73	7679.10	7678.80	7680.71	7686.23	7688.01	7688.06
7	7687.91	7686.71	7683.63	7681.54	7680.46	7679.70	7679.09	7678.81	7680.88	7686.33	7688.03	7688.06
8	7687.91	7686.63	7683.54	7681.49	7680.44	7679.68	7679.06	7678.82	7681.04	7686.45	7688.04	7688.06
9	7687.91	7686.54	7683.48	7681.44	7680.41	7679.66	7679.05	7678.84	7681.21	7686.55	7688.05	7688.06
10	7687.89	7686.45	7683.43	7681.39	7680.38	7679.64	7679.03	7678.85	7681.42	7686.65	7688.07	7688.06
11	7687.88	7686.37	7683.35	7681.34	7680.35	7679.61	7679.02	7678.87	7681.64	7686.74	7688.08	7688.07
12	7687.87	7686.29	7683.27	7681.29	7680.32	7679.59	7679.00	7678.89	7681.84	7686.82	7688.09	7688.07
13	7687.86	7686.21	7683.18	7681.23	7680.30	7679.56	7678.99	7678.91	7682.04	7686.92	7688.10	7688.04
14	7687.84	7686.10	7683.11	7681.20	7680.27	7679.54	7678.98	7678.93	7682.24	7687.00	7688.10	7688.03
15	7687.82	7685.99	7683.03	7681.17	7680.25	7679.53	7678.96	7678.95	7682.43	7687.08	7688.11	7688.01
16	7687.79	7685.88	7682.97	7681.13	7680.22	7679.50	7678.95	7678.98	7682.63	7687.16	7688.10	7688.01
17	7687.78	7685.78	7682.89	7681.08	7680.20	7679.48	7678.93	7679.02	7682.83	7687.23	7688.10	7688.01
18	7687.75	7685.68	7682.82	7681.05	7680.18	7679.45	7678.92	7679.05	7683.03	7687.30	7688.11	7688.00
19	7687.73	7685.58	7682.74	7681.00	7680.14	7679.44	7678.90	7679.09	7683.21	7687.36	7688.10	7688.00
20	7687.70	7685.47	7682.66	7680.98	7680.11	7679.42	7678.89	7679.12	7683.40	7687.42	7688.11	7687.99
21	7687.66	7685.37	7682.59	7680.92	7680.09	7679.40	7678.88	7679.17	7683.62	7687.48	7688.11	7687.98
22	7687.63	7685.28	7682.52	7680.89	7680.07	7679.38	7678.87	7679.22	7683.83	7687.53	7688.10	7687.97
23	7687.60	7685.16	7682.45	7680.86	7680.04	7679.36	7678.85	7679.27	7684.04	7687.58	7688.10	7687.96
24	7687.54	7685.05	7682.37	7680.83	7680.02	7679.34	7678.84	7679.34	7684.24	7687.64	7688.10	7687.94
25	7687.50	7684.95	7682.31	7680.79	7680.00	7679.32	7678.82	7679.41	7684.43	7687.68	7688.08	7687.94
26	7687.46	7684.84	7682.24	7680.75	7679.97	7679.30	7678.81	7679.49	7684.61	7687.72	7688.09	7687.93
27	7687.42	7684.74	7682.17	7680.72	7679.95	7679.28	7678.81	7679.58	7684.79	7687.76	7688.09	7687.92
28	7687.37	7684.65	7682.11	7680.68	7679.92	7679.26	7678.80	7679.68	7684.97	7687.79	7688.09	7687.91
29	7687.31	7684.55	7682.05		7679.89	7679.24	7678.79	7679.78	7685.14	7687.83	7688.09	7687.88
30	7687.23	7684.45	7681.99		7679.87	7679.22	7678.78	7679.89	7685.30	7687.86	7688.09	7687.85
31		7684.34	7681.93		7679.85		7678.77		7685.46	7687.89		7687.83

BHMW-1
Water Levels (feet)

Day	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sept-23	Oct-23
1	7681.78	7680.78	7676.75	7673.99	7672.96	7672.40	7672.08	7671.87	7672.81	7677.84	7681.46	7681.87
2	7681.80	7680.67	7676.62	7673.92	7672.94	7672.39	7672.07	7671.87	7672.90	7678.03	7681.51	7681.89
3	7681.81	7680.58	7676.48	7673.89	7672.91	7672.39	7672.07	7671.87	7673.00	7678.22	7681.56	7681.88
4	7681.81	7680.50	7676.35	7673.83	7672.89	7672.38	7672.05	7671.89	7673.09	7678.40	7681.60	7681.87
5	7681.83	7680.41	7676.24	7673.80	7672.85	7672.36	7672.03	7671.89	7673.21	7678.56	7681.63	7681.86
6	7681.80	7680.29	7676.12	7673.72	7672.84	7672.35	7672.03	7671.91	7673.32	7678.73	7681.67	7681.86
7	7681.81	7680.20	7676.01	7673.69	7672.82	7672.35	7672.02	7671.91	7673.43	7678.90	7681.69	7681.87
8	7681.81	7680.08	7675.92	7673.66	7672.81	7672.33	7672.01	7671.93	7673.55	7679.07	7681.73	7681.88
9	7681.81	7679.97	7675.82	7673.59	7672.76	7672.31	7672.00	7671.94	7673.67	7679.22	7681.75	7681.89
10	7681.78	7679.85	7675.73	7673.57	7672.76	7672.31	7672.00	7671.95	7673.81	7679.36	7681.77	7681.90
11	7681.76	7679.74	7675.60	7673.53	7672.72	7672.31	7671.98	7671.97	7673.96	7679.49	7681.79	7681.90
12	7681.75	7679.64	7675.50	7673.49	7672.70	7672.30	7671.97	7671.98	7674.10	7679.63	7681.81	7681.88
13	7681.75	7679.50	7675.43	7673.47	7672.70	7672.28	7671.96	7672.00	7674.25	7679.77	7681.83	7681.85
14	7681.71	7679.36	7675.34	7673.41	7672.67	7672.26	7671.95	7672.02	7674.40	7679.90	7681.84	7681.84
15	7681.68	7679.23	7675.25	7673.36	7672.67	7672.24	7671.96	7672.04	7674.57	7680.03	7681.83	7681.84
16	7681.66	7679.08	7675.15	7673.33	7672.63	7672.24	7671.95	7672.05	7674.73	7680.15	7681.85	7681.86
17	7681.64	7678.95	7675.07	7673.31	7672.62	7672.24	7671.94	7672.09	7674.92	7680.27	7681.86	7681.87
18	7681.60	7678.82	7674.97	7673.29	7672.60	7672.22	7671.92	7672.12	7675.09	7680.38	7681.87	7681.85
19	7681.55	7678.66	7674.89	7673.24	7672.60	7672.19	7671.91	7672.14	7675.27	7680.48	7681.87	7681.85
20	7681.52	7678.54	7674.82	7673.22	7672.58	7672.18	7671.91	7672.17	7675.47	7680.57	7681.88	7681.84
21	7681.47	7678.41	7674.74	7673.21	7672.54	7672.19	7671.91	7672.21	7675.66	7680.67	7681.87	7681.83
22	7681.42	7678.23	7674.66	7673.13	7672.52	7672.17	7671.90	7672.25	7675.86	7680.76	7681.86	7681.82
23	7681.36	7678.08	7674.58	7673.11	7672.51	7672.17	7671.89	7672.30	7676.05	7680.86	7681.86	7681.80
24	7681.28	7677.92	7674.51	7673.08	7672.51	7672.16	7671.89	7672.34	7676.25	7680.94	7681.85	7681.77
25	7681.24	7677.79	7674.44	7673.07	7672.48	7672.14	7671.87	7672.40	7676.44	7681.01	7681.85	7681.76
26	7681.18	7677.62	7674.37	7673.05	7672.48	7672.13	7671.87	7672.46	7676.64	7681.09	7681.86	7681.73
27	7681.11	7677.49	7674.32	7673.00	7672.45	7672.13	7671.87	7672.52	7676.84	7681.17	7681.87	7681.71
28	7681.05	7677.33	7674.24	7672.98	7672.46	7672.10	7671.87	7672.58	7677.04	7681.22	7681.87	7681.69
29	7680.94	7677.16	7674.18		7672.44	7672.11	7671.87	7672.65	7677.24	7681.30	7681.87	7681.64
30	7680.86	7677.03	7674.11		7672.42	7672.09	7671.86	7672.73	7677.44	7681.36	7681.86	7681.62
31		7676.88	7674.04		7672.39		7671.87		7677.64	7681.41		7681.59

BVMW-10
Water Levels (feet)

Day	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sept-23	Oct-23
1	7667.46	7666.82	7664.23	7661.32	7659.49	7657.84	7657.04	7656.42	7657.59	7663.88	7667.03	7667.44
2	7667.47	7666.73	7664.11	7661.23	7659.43	7657.81	7657.01	7656.41	7657.71	7664.07	7667.07	7667.46
3	7667.48	7666.69	7663.99	7661.17	7659.35	7657.78	7657.00	7656.41	7657.86	7664.26	7667.14	7667.45
4	7667.49	7666.66	7663.87	7661.10	7659.30	7657.80	7656.97	7656.43	7658.02	7664.43	7667.18	7667.43
5	7667.51	7666.61	7663.76	7661.05	7659.22	7657.83	7656.93	7656.46	7658.18	7664.59	7667.19	7667.42
6	7667.49	7666.52	7663.63	7660.95	7659.17	7657.80	7656.91	7656.47	7658.36	7664.76	7667.23	7667.42
7	7667.50	7666.48	7663.51	7660.90	7659.11	7657.77	7656.88	7656.46	7658.55	7664.93	7667.25	7667.43
8	7667.50	7666.40	7663.42	7660.84	7659.06	7657.73	7656.87	7656.46	7658.75	7665.09	7667.28	7667.45
9	7667.51	7666.35	7663.32	7660.75	7658.99	7657.69	7656.84	7656.48	7658.96	7665.23	7667.31	7667.47
10	7667.47	7666.29	7663.19	7660.69	7658.95	7657.67	7656.83	7656.48	7659.18	7665.35	7667.34	7667.47
11	7667.46	7666.25	7663.02	7660.63	7658.86	7657.65	7656.80	7656.52	7659.35	7665.48	7667.36	7667.48
12	7667.45	7666.20	7662.90	7660.55	7658.81	7657.61	7656.76	7656.55	7659.53	7665.60	7667.39	7667.44
13	7667.47	7666.11	7662.83	7660.52	7658.77	7657.57	7656.74	7656.58	7659.76	7665.72	7667.41	7667.40
14	7667.44	7666.03	7662.75	7660.43	7658.72	7657.51	7656.72	7656.60	7659.99	7665.83	7667.41	7667.38
15	7667.40	7665.96	7662.66	7660.35	7658.67	7657.47	7656.72	7656.61	7660.23	7665.92	7667.41	7667.39
16	7667.39	7665.88	7662.56	7660.29	7658.59	7657.47	7656.71	7656.64	7660.46	7666.01	7667.43	7667.41
17	7667.38	7665.79	7662.48	7660.24	7658.54	7657.45	7656.69	7656.66	7660.69	7666.09	7667.45	7667.42
18	7667.35	7665.72	7662.37	7660.18	7658.48	7657.42	7656.65	7656.71	7660.90	7666.16	7667.46	7667.49
19	7667.31	7665.62	7662.29	7660.11	7658.45	7657.38	7656.62	7656.73	7661.11	7666.22	7667.47	7667.53
20	7667.31	7665.55	7662.21	7660.04	7658.39	7657.35	7656.61	7656.78	7661.32	7666.29	7667.47	7667.52
21	7667.28	7665.46	7662.12	7660.00	7658.33	7657.33	7656.59	7656.83	7661.53	7666.36	7667.47	7667.53
22	7667.25	7665.32	7662.04	7659.91	7658.27	7657.30	7656.57	7656.87	7661.71	7666.44	7667.46	7667.53
23	7667.21	7665.20	7661.96	7659.83	7658.23	7657.27	7656.56	7656.91	7661.89	7666.50	7667.44	7667.53
24	7667.14	7665.09	7661.88	7659.77	7658.20	7657.24	7656.55	7656.96	7662.09	7666.57	7667.43	7667.49
25	7667.14	7665.00	7661.80	7659.73	7658.14	7657.21	7656.53	7657.05	7662.30	7666.62	7667.44	7667.48
26	7667.11	7664.90	7661.74	7659.67	7658.09	7657.18	7656.51	7657.13	7662.51	7666.69	7667.44	7667.45
27	7667.05	7664.82	7661.67	7659.61	7658.04	7657.15	7656.49	7657.22	7662.73	7666.76	7667.44	7667.44
28	7667.03	7664.68	7661.59	7659.56	7658.02	7657.11	7656.48	7657.30	7662.96	7666.81	7667.45	7667.42
29	7666.93	7664.54	7661.53		7657.97	7657.09	7656.47	7657.39	7663.19	7666.88	7667.44	7667.39
30	7666.87	7664.45	7661.47		7657.93	7657.06	7656.46	7657.48	7663.44	7666.95	7667.43	7667.37
31		7664.33	7661.39		7657.86		7656.44		7663.67	7666.99		7667.35

BVMW-11
Water Levels (feet)

Day	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sept-23	Oct-23
1	7654.42	7654.03	7652.19	7649.46	7647.79	7646.56	7645.93	7645.38	7646.38	7651.17	7654.13	7654.70
2	7654.40	7653.97	7652.12	7649.34	7647.74	7646.71	7645.84	7645.48	7646.60	7651.27	7654.21	7654.59
3	7654.47	7654.02	7651.87	7649.26	7647.64	7646.53	7645.76	7645.74	7646.48	7651.40	7654.43	7654.54
4	7654.50	7654.14	7651.62	7649.39	7647.81	7646.50	7645.72	7645.86	7646.69	7651.55	7654.36	7654.57
5	7654.47	7653.89	7651.50	7649.47	7647.95	7646.43	7645.74	7645.66	7646.66	7651.74	7654.27	7654.55
6	7654.63	7653.78	7651.40	7649.19	7647.65	7646.37	7645.80	7645.51	7646.66	7652.07	7654.28	7654.55
7	7654.44	7653.74	7651.41	7649.06	7647.29	7646.33	7646.04	7645.45	7646.75	7652.11	7654.30	7654.65
8	7654.41	7653.66	7651.49	7649.02	7647.26	7646.44	7645.77	7645.48	7647.05	7652.14	7654.37	7654.71
9	7654.44	7653.62	7651.33	7648.85	7647.29	7646.69	7645.63	7645.51	7647.31	7652.25	7654.41	7654.63
10	7654.41	7653.60	7651.11	7648.81	7647.17	7646.48	7645.64	7645.69	7647.32	7652.35	7654.58	7654.58
11	7654.38	7653.78	7650.96	7648.94	7647.28	7646.33	7645.62	7645.88	7647.36	7652.45	7654.47	7654.60
12	7654.46	7653.54	7650.86	7649.00	7647.39	7646.22	7645.57	7645.70	7647.48	7652.70	7654.46	7654.56
13	7654.65	7653.44	7650.82	7648.71	7647.10	7646.20	7645.71	7645.70	7647.67	7652.94	7654.41	7654.51
14	7654.45	7653.32	7650.97	7648.52	7646.95	7646.16	7645.94	7645.60	7647.81	7652.88	7654.45	7654.62
15	7654.40	7653.23	7650.96	7648.74	7646.92	7646.41	7645.76	7645.71	7648.14	7652.91	7654.45	7654.65
16	7654.37	7653.14	7650.74	7648.54	7646.90	7646.55	7645.59	7645.57	7648.47	7652.97	7654.55	7654.53
17	7654.37	7653.30	7650.56	7648.38	7646.84	7646.25	7645.56	7645.86	7648.53	7653.07	7654.67	7654.63
18	7654.37	7653.35	7650.71	7648.24	7646.82	7646.12	7645.50	7646.02	7648.58	7653.17	7654.58	7654.58
19	7654.41	7653.14	7650.39	7648.39	7647.07	7646.06	7645.49	7646.09	7648.81	7653.44	7654.48	7654.54
20	7654.58	7652.99	7650.30	7648.22	7646.81	7646.03	7645.65	7645.85	7648.96	7653.61	7654.52	7654.53
21	7654.37	7652.85	7650.40	7648.22	7646.70	7646.00	7645.89	7645.73	7649.14	7653.56	7654.53	7654.63
22	7654.30	7652.73	7650.44	7648.32	7646.61	7646.24	7645.71	7645.75	7649.46	7653.52	7654.47	7654.66
23	7654.32	7652.64	7650.24	7648.13	7646.57	7646.35	7645.62	7646.05	7649.74	7653.63	7654.54	7654.56
24	7654.47	7652.80	7650.05	7648.06	7646.54	7646.07	7645.47	7646.19	7649.73	7653.70	7654.69	7654.51
25	7654.39	7652.80	7649.94	7648.18	7646.60	7645.96	7645.40	7646.28	7649.79	7653.82	7654.54	7654.49
26	7654.40	7652.55	7649.85	7648.26	7646.84	7645.92	7645.42	7646.33	7650.11	7653.98	7654.53	7654.49
27	7654.47	7652.36	7649.78	7648.00	7646.58	7645.88	7645.65	7646.12	7650.29	7654.14	7654.45	7654.51
28	7654.19	7652.30	7649.94	7647.87	7646.43	7645.87	7645.84	7646.03	7650.48	7654.03	7654.50	7654.61
29	7654.15	7652.34	7649.94		7646.40	7646.02	7645.55	7646.05	7650.69	7653.99	7654.49	7654.60
30	7654.06	7652.11	7649.67		7646.38	7646.19	7645.40	7646.09	7650.98	7654.04	7654.59	7654.48
31		7652.18	7649.53		7646.31		7645.39		7651.03	7654.09		7654.44

BVMW-12
Water Levels (feet)

Day	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sept-23	Oct-23
1	7647.84	7647.61	7646.82	7645.73	7644.74	7644.09	7643.60	7643.31	7643.97	NM	NM	NM
2	7647.84	7647.60	7646.80	7645.67	7644.69	7644.18	7643.53	7643.36	7644.11	NM	NM	NM
3	7647.87	7647.59	7646.71	7645.61	7644.66	7644.05	7643.51	7643.52	7644.06	NM	NM	NM
4	7647.88	7647.62	7646.62	7645.67	7644.74	7643.97	7643.46	7643.60	7644.18	NM	NM	NM
5	7647.86	7647.55	7646.57	7645.71	7644.83	7643.92	7643.46	7643.49	7644.19	NM	NM	NM
6	7647.92	7647.51	7646.53	7645.59	7644.71	7643.87	7643.48	7643.39	7644.19	NM	NM	NM
7	7647.85	7647.49	7646.52	7645.49	7644.58	7643.85	7643.65	7643.36	7644.23	NM	NM	NM
8	7647.83	7647.45	7646.54	7645.46	7644.55	7643.91	7643.51	7643.38	7644.38	NM	NM	NM
9	7647.83	7647.42	7646.49	7645.38	7644.56	7644.05	7643.43	7643.40	7644.55	NM	NM	NM
10	7647.82	7647.42	7646.40	7645.33	7644.47	7643.93	7643.44	7643.48	7644.61	NM	NM	NM
11	7647.82	7647.47	7646.35	7645.40	7644.54	7643.82	7643.41	7643.61	7644.64	NM	NM	NM
12	7647.84	7647.39	7646.31	7645.45	7644.62	7643.78	7643.38	7643.52	7644.71	NM	NM	NM
13	7647.91	7647.37	7646.27	7645.27	7644.47	7643.76	7643.45	7643.52	7644.82	NM	NM	NM
14	7647.84	7647.33	7646.32	7645.19	7644.38	7643.74	7643.61	7643.45	7644.91	NM	NM	NM
15	7647.81	7647.28	7646.32	7645.31	7644.34	7643.88	7643.52	7643.53	NM	NM	NM	NM
16	7647.79	7647.23	7646.25	7645.20	7644.33	7643.96	7643.41	7643.46	NM	NM	NM	NM
17	7647.78	7647.27	7646.19	7645.09	7644.29	7643.81	7643.39	7643.63	NM	NM	NM	7647.66
18	7647.78	7647.28	7646.23	7645.01	7644.28	7643.72	7643.35	7643.73	NM	NM	NM	7647.62
19	7647.79	7647.22	7646.13	7645.07	7644.40	7643.68	7643.33	7643.78	NM	NM	NM	7647.60
20	7647.84	7647.15	7646.09	7644.98	7644.28	7643.65	7643.43	7643.65	NM	NM	NM	7647.60
21	7647.77	7647.09	7646.12	7644.97	7644.21	7643.64	7643.57	7643.59	NM	NM	NM	7647.64
22	7647.74	7647.07	7646.13	7645.05	7644.15	7643.77	7643.48	7643.58	NM	NM	NM	7647.65
23	7647.74	7647.02	7646.07	7644.96	7644.12	7643.85	7643.43	7643.76	NM	NM	NM	7647.62
24	7647.79	7647.06	7646.00	7644.90	7644.10	7643.68	7643.34	7643.85	NM	NM	NM	7647.59
25	7647.75	7647.06	7645.96	7644.96	7644.14	7643.62	7643.30	7643.91	NM	NM	NM	7647.59
26	7647.76	7646.96	7645.91	7645.00	7644.26	7643.60	7643.29	7643.95	NM	NM	NM	7647.59
27	7647.77	7646.89	7645.88	7644.88	7644.14	7643.56	7643.43	7643.83	NM	NM	NM	7647.60
28	7647.69	7646.87	7645.95	7644.79	7644.04	7643.56	7643.56	7643.78	NM	NM	NM	7647.64
29	7647.69	7646.88	7645.94		7644.01	7643.62	7643.41	7643.80	NM	NM	NM	7647.63
30	7647.64	7646.81	7645.85		7643.99	7643.75	7643.34	7643.82	NM	NM	NM	7647.56
31		7646.82	7645.80		7643.97		7643.32		NM	NM		7647.55

NM = No measurement due to datalogger malfunction.

BVMW-13
Water Levels (feet)

Day	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sept-23	Oct-23
1	7645.71	7645.51	7644.53	7643.12	7642.16	7641.19	7640.58	7640.11	7640.73	7643.69	7645.47	7645.85
2	7645.71	7645.47	7644.50	7643.06	7642.10	7641.31	7640.46	7640.14	7640.92	7643.76	7645.51	7645.84
3	7645.74	7645.47	7644.41	7643.03	7642.05	7641.25	7640.44	7640.25	7640.93	7643.86	7645.61	7645.80
4	7645.76	7645.53	7644.27	7643.03	7642.08	7641.08	7640.40	7640.36	7640.99	7643.93	7645.62	7645.80
5	7645.75	7645.45	7644.21	7643.09	7642.17	7641.01	7640.37	7640.31	7641.06	7644.02	7645.58	7645.79
6	7645.80	7645.38	7644.14	7642.98	7642.11	7640.97	7640.37	7640.20	7641.06	7644.16	7645.60	7645.79
7	7645.75	7645.36	7644.12	7642.90	7641.94	7640.94	7640.53	7640.16	7641.11	7644.25	7645.60	7645.83
8	7645.72	7645.33	7644.15	7642.89	7641.89	7640.95	7640.43	7640.15	7641.23	7644.28	7645.63	7645.87
9	7645.72	7645.31	7644.10	7642.79	7641.88	7641.10	7640.34	7640.20	7641.41	7644.32	7645.64	7645.86
10	7645.71	7645.30	7642.94	7642.77	7641.81	7641.05	7640.31	7640.24	7641.53	7644.37	7645.73	7645.82
11	7645.71	7645.36	7643.91	7642.79	7641.81	7640.93	7640.29	7640.37	7641.57	7644.44	7645.71	7645.82
12	7645.73	7645.30	7643.87	7642.81	7641.91	7640.88	7640.25	7640.34	7641.65	7644.54	7645.71	7645.79
13	7645.81	7645.23	7643.84	7642.75	7641.81	7640.82	7640.28	7640.30	7641.78	7644.66	7645.69	7645.76
14	7645.74	7645.19	7643.89	7642.64	7641.69	7640.78	7640.44	7640.25	7641.87	7644.70	7645.70	7645.81
15	7645.71	7645.14	7643.88	7642.66	7641.64	7640.84	7640.42	7640.31	7642.03	7644.71	7645.72	7645.85
16	7645.70	7645.10	7643.78	7642.62	7641.58	7641.00	7640.29	7640.24	7642.25	7644.76	7645.74	7645.80
17	7645.70	7645.13	7643.71	7642.55	7641.54	7640.88	7640.25	7640.36	7642.36	7644.80	7645.81	7645.85
18	7645.69	7645.15	7643.71	7642.50	7641.51	7640.76	7640.21	7640.49	7642.38	7644.85	7645.79	7645.85
19	7645.68	7645.07	7643.64	7642.49	7641.66	7640.68	7640.18	7640.54	7642.47	7644.95	7645.75	7645.83
20	7645.76	7645.03	7643.57	7642.46	7641.56	7640.65	7640.23	7640.46	7642.56	7645.06	7645.76	7645.82
21	7645.69	7644.95	7643.58	7642.45	7641.43	7640.63	7640.39	7640.37	7642.65	7645.09	7645.76	7645.85
22	7645.65	7644.88	7643.60	7642.45	7641.38	7640.72	7640.34	7640.35	7642.76	7645.09	7645.74	7645.90
23	7645.65	7644.82	7643.54	7642.39	7641.34	7640.86	7640.27	7640.48	7642.90	7645.14	7645.75	7645.85
24	7645.67	7644.84	7643.46	7642.34	7641.30	7640.70	7640.19	7640.61	7642.99	7645.18	7645.82	7645.81
25	7645.68	7644.87	7643.39	7642.37	7641.30	7640.59	7640.14	7640.69	7643.01	7645.26	7645.79	7645.81
26	7645.67	7644.78	7643.34	7642.43	7641.42	7640.56	7640.12	7640.75	7643.11	7645.33	7645.78	7645.80
27	7645.69	7644.70	7643.31	7642.31	7641.33	7640.54	7640.21	7640.68	7643.23	7645.43	7645.75	7645.81
28	7645.63	7644.64	7643.34	7642.22	7641.24	7640.50	7640.34	7640.58	7643.33	7645.42	7645.77	7645.86
29	7645.56	7644.61	7643.34		7641.20	7640.54	7640.26	7640.59	7643.40	7645.41	7645.77	7645.85
30	7645.53	7644.56	7643.25		7641.16	7640.70	7640.15	7640.62	7643.56	7645.44	7645.79	7645.79
31		7644.52	7643.18		7641.10		7640.13		7643.64	7645.45		7645.77

BVMW-02
Water Levels (feet)

Day	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sept-23	Oct-23
1	7786.39	7783.00	7781.52	7780.83	7780.50	7779.53	7780.28	7784.69	7791.51	7794.49	7790.35	7787.19
2	7786.16	7782.94	7781.48	7780.81	7780.50	7779.49	7780.47	7785.02	7791.79	7794.42	7790.32	7787.25
3	7785.96	7782.87	7781.43	7780.78	7780.50	7779.46	7780.52	7785.32	7791.96	7794.38	7790.28	7787.25
4	7785.75	7782.83	7781.39	7780.76	7780.52	7779.42	7780.56	7785.64	7791.72	7794.30	7790.36	7787.01
5	7785.57	7782.78	7781.36	7780.74	7780.53	7779.40	7780.64	7786.68	7791.39	7794.34	7790.14	7786.72
6	7785.39	7782.73	7781.34	7780.71	7780.53	7779.38	7780.71	7787.20	7791.26	7794.46	7789.89	7786.47
7	7785.24	7782.68	7781.30	7780.68	7780.55	7779.36	7780.80	7787.43	7791.31	7794.35	7789.76	7786.31
8	7785.09	7782.64	7781.28	7780.68	7780.57	7779.34	7780.89	7787.61	7791.15	7794.39	7789.57	7786.13
9	7784.95	7782.59	7781.26	7780.67	7780.57	7779.33	7780.98	7787.75	7790.94	7794.48	7789.38	7786.38
10	7784.82	7782.55	7781.25	7780.65	7780.57	7779.31	7781.09	7787.98	7790.96	7794.31	7789.29	7786.93
11	7784.69	7782.52	7781.25	7780.63	7780.54	7779.30	7781.31	7788.09	7791.36	7794.07	7789.27	7787.44
12	7784.57	7782.49	7781.20	7780.62	7780.55	7779.28	7781.59	7788.34	7791.73	7793.69	7789.35	7787.73
13	7784.47	7782.43	7781.19	7780.61	7780.57	7779.27	7781.78	7788.80	7791.94	7793.35	7789.36	7787.41
14	7784.35	7782.39	7781.17	7780.60	7780.54	7779.26	7781.96	7789.22	7792.03	7792.92	7789.21	7787.16
15	7784.24	7782.33	7781.15	7780.59	7780.51	7779.23	7782.11	7789.58	7792.09	7792.59	7788.91	7787.54
16	7784.15	7782.29	7781.13	7780.58	7780.40	7779.22	7782.27	7789.81	7792.26	7792.46	7788.68	7787.62
17	7784.06	7782.25	7781.10	7780.58	7780.32	7779.21	7782.42	7790.26	7792.40	7792.33	7788.55	7787.74
18	7783.97	7782.21	7781.08	7780.58	7780.24	7779.19	7782.55	7790.92	7792.54	7792.25	7788.51	7787.87
19	7783.87	7782.15	7781.05	7780.57	7780.18	7779.16	7782.64	7791.43	7792.58	7792.03	7788.53	7788.02
20	7783.79	7782.11	7781.04	7780.58	7780.13	7779.20	7782.76	7791.38	7792.73	7791.75	7788.47	7788.16
21	7783.71	7782.08	7781.02	7780.56	7780.06	7779.29	7782.88	7791.18	7792.86	7791.48	7788.47	7788.28
22	7783.63	7782.00	7781.00	7780.55	7780.00	7779.37	7782.99	7791.02	7792.94	7791.42	7788.42	7788.35
23	7783.55	7781.96	7780.98	7780.53	7779.94	7779.49	7783.09	7790.93	7792.99	7791.42	7788.24	7788.31
24	7783.46	7781.89	7780.96	7780.52	7779.89	7779.60	7783.22	7791.04	7793.15	7791.43	7787.92	7788.15
25	7783.40	7781.86	7780.96	7780.50	7779.82	7779.68	7783.32	7791.35	7793.34	7791.39	7787.54	7787.94
26	7783.34	7781.80	7780.93	7780.49	7779.77	7779.78	7783.42	7791.59	7793.48	7791.32	7787.45	7787.68
27	7783.26	7781.75	7780.92	7780.48	7779.71	7779.87	7783.54	7791.80	7793.66	7791.19	7787.43	7787.40
28	7783.21	7781.71	7780.91	7780.48	7779.68	7779.94	7783.67	7791.79	7793.89	7790.98	7787.41	7787.14
29	7783.12	7781.64	7780.89		7779.64	7780.03	7783.79	7791.72	7793.92	7790.85	7787.28	7786.88
30	7783.06	7781.60	7780.87		7779.59	7780.12	7784.06	7791.61	7794.14	7790.85	7787.17	7786.63
31		7781.55	7780.84		7779.55		7784.38		7794.40	7790.68		7786.40

BVMW-05
Water Levels (feet)

Day	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sept-23	Oct-23
1	7755.40	7746.88	7743.52	7742.02	7741.21	7740.51	7740.23	7748.06	7755.12	7759.34	7756.97	7754.63
2	7754.97	7746.75	7743.45	7741.98	7741.19	7740.52	7740.47	7747.93	7755.30	7759.68	7756.89	7754.51
3	7754.55	7746.53	7743.37	7741.94	7741.17	7740.48	7740.55	7747.87	7755.50	7759.98	7756.76	7754.39
4	7754.14	7746.38	7743.31	7741.94	7741.16	7740.48	7740.59	7747.87	7755.74	7760.07	7756.65	7754.31
5	7753.77	7746.25	7743.25	7741.91	7741.11	7740.41	7740.57	7747.95	7755.86	7760.28	7756.55	7754.20
6	7753.41	7746.08	7743.19	7741.87	7741.10	7740.38	7740.56	7749.44	7755.98	7760.46	7756.41	7754.10
7	7753.04	7745.97	7743.11	7741.84	7741.05	7740.37	7740.53	7753.11	7755.80	7760.67	7756.30	7753.99
8	7752.70	7745.81	7743.06	7741.84	7741.04	7740.35	7740.55	7753.60	7755.93	7760.70	7756.16	7753.89
9	7752.36	7745.68	7743.01	7741.80	7741.01	7740.32	7740.54	7754.01	7756.03	7760.81	7756.07	7753.83
10	7752.02	7745.53	7742.96	7741.76	7740.98	7740.31	7740.55	7754.11	7756.10	7761.02	7755.96	7753.94
11	7751.69	7745.42	7742.91	7741.74	7740.98	7740.32	7740.57	7754.20	7756.65	7761.64	7755.84	7754.22
12	7751.35	7745.27	7742.84	7741.69	7740.94	7740.29	7740.91	7754.96	7756.77	7762.08	7755.70	7754.18
13	7751.04	7745.15	7742.79	7741.68	7740.93	7740.28	7746.16	7755.86	7757.09	7761.04	7755.61	7754.13
14	7750.71	7745.01	7742.76	7741.65	7740.94	7740.27	7752.77	7757.55	7757.86	7760.37	7755.53	7754.07
15	7750.40	7744.91	7742.74	7741.61	7740.90	7740.25	7753.24	7757.88	7758.52	7759.99	7755.54	7754.04
16	7750.14	7744.77	7742.65	7741.56	7740.87	7740.24	7753.65	7757.32	7759.15	7759.70	7755.57	7753.91
17	7749.85	7744.68	7742.61	7741.55	7740.85	7740.25	7753.30	7757.17	7759.17	7759.44	7755.55	7753.84
18	7749.55	7744.58	7742.56	7741.50	7740.82	7740.24	7753.34	7757.33	7759.21	7759.21	7755.54	7753.79
19	7749.31	7744.49	7742.48	7741.49	7740.81	7740.22	7752.93	7757.07	7759.62	7758.99	7755.50	7753.67
20	7749.08	7744.40	7742.46	7741.46	7740.80	7740.22	7752.40	7756.85	7759.70	7758.81	7755.50	7753.62
21	7748.83	7744.32	7742.41	7741.44	7740.76	7740.22	7749.07	7755.46	7759.68	7758.61	7755.51	7753.56
22	7748.60	7744.22	7742.38	7741.41	7740.74	7740.22	7747.78	7755.65	7759.52	7758.42	7755.40	7753.50
23	7748.37	7744.12	7742.32	7741.37	7740.70	7740.19	7747.24	7755.54	7759.36	7758.24	7755.34	7753.51
24	7748.18	7744.07	7742.29	7741.31	7740.71	7740.19	7747.07	7755.65	7759.21	7758.08	7755.27	7753.51
25	7747.96	7743.97	7742.25	7741.30	7740.67	7740.19	7747.92	7755.05	7758.91	7757.91	7755.21	7753.50
26	7747.79	7743.89	7742.22	7741.28	7740.64	7740.19	7748.79	7754.93	7759.48	7757.73	7755.14	7753.09
27	7747.60	7743.83	7742.17	7741.25	7740.63	7740.19	7749.21	7754.79	7759.02	7757.60	7755.04	7752.86
28	7747.42	7743.78	7742.18	7741.22	7740.60	7740.18	7749.22	7754.74	7759.07	7757.46	7754.93	7752.63
29	7747.22	7743.70	7742.10		7740.57	7740.17	7749.81	7754.85	7759.15	7757.33	7754.82	7752.44
30	7747.03	7743.65	7742.08		7740.57	7740.17	7749.32	7755.01	7759.16	7757.21	7754.74	7752.29
31		7743.58	7742.06		7740.56		7748.40		7758.99	7757.11		7752.14

BVMW-08
Water Levels (feet)

Day	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sept-23	Oct-23
1	7722.61	7718.36	7712.38	7709.67	NM	NM	7706.07	7705.73	7709.98	7718.80	7722.60	7722.24
2	7722.58	7718.14	7712.25	7709.61	NM	NM	7706.04	7705.76	7710.31	7719.00	7722.62	7722.24
3	7722.56	7717.90	7712.12	7709.53	NM	NM	7706.02	7705.80	7710.66	7719.18	7722.64	7722.21
4	7722.50	7717.70	7711.99	7709.47	NM	7706.87	7705.99	7705.84	7711.01	7719.36	7722.66	7722.19
5	7722.45	7717.49	7711.87	7709.40	NM	7706.84	7705.95	7705.89	7711.36	7719.54	7722.65	7722.17
6	7722.38	7717.27	7711.77	NM	NM	7706.81	7705.94	7705.95	7711.71	7719.71	7722.65	7722.14
7	7722.30	7717.05	7711.65	NM	NM	7706.78	7705.92	7706.01	7712.05	7719.89	7722.65	7722.12
8	7722.23	7716.83	7711.56	NM	NM	7706.75	7705.88	7706.06	7712.41	7720.06	7722.64	7722.11
9	7722.16	7716.60	7711.46	NM	NM	7706.72	7705.86	7706.13	7712.76	7720.24	7722.62	7722.10
10	7722.06	7716.38	7711.37	NM	NM	7706.69	7705.84	7706.20	7713.04	7720.40	7722.61	7722.08
11	7721.96	7716.17	7711.28	NM	NM	7706.66	7705.82	7706.29	7713.49	7720.57	7722.59	7722.06
12	7721.85	7715.96	7711.18	NM	NM	7706.63	7705.79	7706.38	7713.82	7720.73	7722.58	7722.03
13	7721.73	7715.75	7711.09	NM	NM	7706.59	7705.77	7706.47	7714.14	7720.90	7722.56	7721.98
14	7721.60	7715.53	7711.00	NM	NM	7706.56	7705.74	7706.57	7714.44	7721.05	7722.53	7721.93
15	7721.45	7715.31	7710.93	NM	NM	7706.52	7705.73	7706.67	7714.75	7721.20	7722.48	7721.89
16	7721.30	7715.10	7710.84	NM	NM	7706.48	7705.71	7706.77	7715.04	7721.34	7722.47	7721.87
17	7721.16	7714.88	7710.74	NM	NM	7706.45	7705.69	7706.90	7715.34	7721.48	7722.45	7721.84
18	7720.99	7714.69	7710.68	NM	NM	7706.42	7705.67	7707.03	7715.61	7721.62	7722.43	7721.80
19	7720.81	7714.49	7710.59	NM	NM	7706.38	7705.65	7707.17	7715.88	7721.74	7722.42	7721.75
20	7720.62	7714.30	7710.51	NM	NM	7706.38	7705.63	7707.31	7716.14	7721.85	7722.40	7721.69
21	7720.44	7714.11	7710.44	NM	NM	7706.35	7705.62	7707.47	7716.39	7721.95	7722.37	7721.63
22	7720.24	7713.94	7710.36	NM	NM	7706.32	7705.61	7707.63	7716.64	7722.05	7722.35	7721.58
23	7720.05	7713.76	7710.29	NM	NM	7706.29	7705.60	7707.83	7716.88	7722.14	7722.33	7721.51
24	7719.84	7713.58	7710.22	NM	NM	7706.27	7705.60	7708.03	7717.11	7722.22	7722.31	7721.42
25	7719.64	7713.41	7710.15	NM	NM	7706.24	7705.58	7708.26	7717.34	7722.29	7722.29	7721.35
26	7719.43	7713.25	7710.07	NM	NM	7706.21	7705.59	7708.51	7717.57	7722.35	7722.28	7721.27
27	7719.21	7713.10	7710.00	NM	NM	7706.18	7705.61	7708.78	7717.78	7722.41	7722.28	7721.17
28	7719.01	7712.95	7709.94	NM	NM	7706.15	7705.62	7709.06	7718.00	7722.45	7722.27	7721.09
29	7718.80	7712.81	7709.88		NM	7706.12	7705.64	7709.36	7718.20	7722.50	7722.26	7720.99
30	7718.56	7712.65	7709.81		NM	7706.10	7705.67	7709.67	7718.40	7722.55	7722.25	7720.89
31		7712.51	7709.74		NM		7705.71		7718.61	7722.58		7720.79

NM = No measurement due to datalogger malfunction.

BVMW-09
Water Levels (feet)

Day	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sept-23	Oct-23
1	7715.05	7712.69	7708.74	7706.10	7704.50	7703.26	7702.30	7701.99	7706.46	7712.72	7715.58	7716.18
2	7715.06	7712.55	7708.64	7706.02	7704.46	7703.22	7702.27	7702.02	7706.75	7712.86	7715.60	7716.22
3	7715.05	7712.40	7708.54	7705.94	7704.41	7703.19	7702.25	7702.07	7707.04	7712.98	7715.65	7716.24
4	7715.01	7712.28	7708.44	7705.88	7704.36	7703.15	7702.21	7702.12	7707.34	7713.09	7715.69	7716.25
5	7715.00	7712.16	7708.34	7705.82	7704.32	7703.13	7702.19	7702.16	7707.61	7713.21	7715.68	7716.26
6	7714.94	7712.01	7708.25	7705.75	7704.27	7703.09	7702.16	7702.23	7707.89	7713.32	7715.70	7716.27
7	7714.91	7711.88	7708.16	7705.68	7704.23	7703.05	7702.13	7702.29	7708.15	7713.44	7715.71	7716.30
8	7714.87	7711.73	7708.05	7705.61	7704.18	7703.03	7702.11	7702.36	7708.40	7713.56	7715.72	7716.32
9	7714.84	7711.60	7707.98	7705.55	7704.14	7702.99	7702.08	7702.45	7708.64	7713.67	7715.72	7716.35
10	7714.78	7711.46	7707.93	7705.49	7704.10	7702.96	7702.06	7702.53	7708.90	7713.78	7715.74	7716.37
11	7714.72	7711.34	7707.82	7705.44	7704.07	7702.92	7702.04	7702.63	7709.16	7713.88	7715.74	7716.39
12	7714.67	7711.22	7707.72	7705.36	7704.02	7702.88	7702.01	7702.73	7709.40	7713.99	7715.76	7716.35
13	7714.60	7711.07	7707.64	7705.30	7703.98	7702.86	7701.99	7702.85	7709.64	7714.10	7715.77	7716.29
14	7714.53	7710.93	7707.56	7705.25	7703.95	7702.82	7701.96	7702.98	7709.85	7714.21	7715.79	7716.25
15	7714.43	7710.78	7707.48	7705.19	7703.90	7702.80	7701.95	7703.12	7710.06	7714.31	7715.77	7716.20
16	7714.36	7710.65	7707.38	7705.12	7703.87	7702.75	7701.92	7703.26	7710.26	7714.42	7715.80	7716.18
17	7714.28	7710.52	7707.29	7705.06	7703.82	7702.73	7701.91	7703.43	7710.46	7714.53	7715.81	7716.15
18	7714.19	7710.40	7707.21	7705.02	7703.77	7702.69	7701.90	7703.61	7710.64	7714.63	7715.84	7716.11
19	7714.09	7710.25	7707.11	7704.97	7703.74	7702.67	7701.87	7703.78	7710.81	7714.73	7715.85	7716.05
20	7713.98	7710.11	7707.03	7704.92	7703.70	7702.63	7701.86	7703.96	7710.97	7714.81	7715.88	7715.98
21	7713.88	7710.00	7706.95	7704.88	7703.66	7702.60	7701.84	7704.16	7711.15	7714.89	7715.90	7715.92
22	7713.77	7709.88	7706.87	7704.83	7703.62	7702.57	7701.83	7704.35	7711.30	7714.98	7715.93	7715.84
23	7713.67	7709.75	7706.78	7704.77	7703.58	7702.53	7701.83	7704.56	7711.46	7715.06	7715.95	7715.76
24	7713.53	7709.63	7706.71	7704.71	7703.55	7702.51	7701.83	7704.78	7711.60	7715.14	7715.97	7715.67
25	7713.42	7709.52	7706.63	7704.67	7703.52	7702.47	7701.83	7704.99	7711.76	7715.20	7715.99	7715.58
26	7713.32	7709.40	7706.55	7704.63	7703.48	7702.45	7701.83	7705.21	7711.90	7715.26	7716.03	7715.48
27	7713.20	7709.29	7706.47	7704.59	7703.43	7702.42	7701.85	7705.45	7712.05	7715.33	7716.06	7715.38
28	7713.09	7709.17	7706.41	7704.55	7703.39	7702.38	7701.87	7705.68	7712.19	7715.38	7716.11	7715.27
29	7712.95	7709.06	7706.32		7703.36	7702.35	7701.89	7705.93	7712.32	7715.42	7716.13	7715.18
30	7712.80	7708.95	7706.26		7703.33	7702.32	7701.92	7706.19	7712.45	7715.49	7716.15	7715.06
31		7708.84	7706.17		7703.29		7701.95		7712.60	7715.53		7714.97

RMBH-1
Water Levels (feet)

Day	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sept-23	Oct-23
1	7654.85	7654.51	7652.80	7650.25	7648.66	7647.65	7646.87	7646.33	7647.27	7651.88	7654.62	7655.16
2	7654.84	7654.47	7652.74	7650.16	7648.60	7647.79	7646.78	7646.40	7647.47	7651.98	7654.69	7655.07
3	7654.91	7654.49	7652.54	7650.07	7648.54	7647.59	7646.75	7646.62	7647.40	7652.12	7654.86	7655.03
4	7654.93	7654.58	7652.32	7650.15	7648.65	7647.45	7646.69	7646.74	7647.56	7652.26	7654.81	7655.05
5	7654.90	7654.39	7652.21	7650.22	7648.77	7647.39	7646.68	7646.60	7647.58	7652.42	7654.76	7655.04
6	7655.05	7654.28	7652.11	7650.03	7648.61	7647.33	7646.71	7646.46	7647.58	7652.70	7654.76	7655.03
7	7654.89	7654.26	7652.10	7649.88	7648.42	7647.29	7646.92	7646.42	7647.67	7652.77	7654.78	7655.11
8	7654.86	7654.19	7652.14	7649.82	7648.37	7647.37	7646.72	7646.43	7647.91	7652.81	7654.82	7655.16
9	7654.87	7654.13	7652.01	7649.69	7648.40	7647.57	7646.62	7646.47	7648.15	7652.90	7654.86	7655.11
10	7654.85	7654.12	7651.81	7649.62	7648.27	7647.41	7646.61	7646.59	7648.24	7653.00	7655.01	7655.06
11	7654.84	7654.25	7651.67	7649.71	7648.36	7647.26	7646.57	7646.76	7648.31	7653.11	7654.94	7655.07
12	7654.90	7654.05	7651.58	7649.78	7648.47	7647.19	7646.54	7646.64	7648.43	7653.31	7654.92	7655.05
13	7655.07	7653.97	7651.52	7649.54	7648.25	7647.15	7646.63	7646.63	7648.61	7653.51	7654.89	7655.01
14	7654.90	7653.88	7651.63	7649.38	7648.12	7647.12	7646.84	7646.53	7648.74	7653.50	7654.92	7655.09
15	7654.86	7653.79	7651.62	7649.55	7648.06	7647.30	7646.71	7646.65	7649.01	7653.52	7654.91	7655.11
16	7654.82	7653.71	7651.45	7649.39	7648.03	7647.42	7646.55	7646.53	7649.31	7653.60	7654.99	7655.02
17	7654.81	7653.82	7651.29	7649.24	7647.97	7647.20	7646.52	7646.75	7649.41	7653.66	7655.11	7655.06
18	7654.81	7653.85	7651.39	7649.11	7647.96	7647.07	7646.46	7646.90	7649.48	7653.75	7655.03	7655.01
19	7654.85	7653.70	7651.16	7649.20	7648.14	7647.02	7646.44	7646.97	7649.67	7653.96	7654.95	7655.00
20	7654.99	7653.57	7651.05	7649.07	7647.96	7646.98	7646.56	7646.79	7649.83	7654.12	7654.97	7655.08
21	7654.81	7653.43	7651.11	7649.04	7647.84	7646.96	7646.77	7646.69	7650.00	7654.11	7655.00	7655.11
22	7654.75	7653.35	7651.14	7649.14	7647.77	7647.14	7646.63	7646.70	7650.26	7654.09	7654.95	7655.03
23	7654.77	7653.26	7650.98	7649.01	7647.72	7647.24	7646.57	7646.94	7650.52	7654.16	7655.00	7654.98
24	7654.88	7653.36	7650.82	7648.91	7647.69	7647.01	7646.43	7647.08	7650.58	7654.23	7655.14	7654.97
25	7654.82	7653.36	7650.73	7649.00	7647.73	7646.91	7646.37	7647.16	7650.65	7654.33	7655.02	7654.96
26	7654.82	7653.15	7650.63	7649.06	7647.91	7646.88	7646.37	7647.21	7650.89	7654.46	7655.00	7654.97
27	7654.88	7652.99	7650.55	7648.86	7647.72	7646.83	7646.55	7647.06	7651.08	7654.60	7654.93	7655.05
28	7654.67	7652.93	7650.67	7648.73	7647.58	7646.83	7646.71	7646.98	7651.23	7654.55	7654.97	7655.04
29	7654.63	7652.94	7650.67		7647.55	7646.91	7646.51	7647.01	7651.42	7654.51	7654.97	7654.92
30	7654.55	7652.77	7650.46		7647.51	7647.09	7646.38	7647.04	7651.67	7654.55	7655.05	7654.90
31		7652.80	7650.36		7647.48		7646.35		7651.77	7654.59		7654.88

RMBH-2
Water Levels (feet)

Day	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sept-23	Oct-23
1	7653.08	7652.51	7650.45	7647.99	NM	7645.98	7645.23	7644.97	7645.95	7650.39	7652.90	7653.46
2	7653.00	7652.34	7650.39	7647.90	NM	7646.12	7645.12	7645.03	7646.15		7652.97	7653.38
3	7652.95	7652.11	7650.16	NM	NM	7645.94	7645.08	7645.25	7646.09	7650.48	7653.14	7653.28
4	7652.98	7652.20	7649.98	NM	7646.98	7645.79	7644.96	7645.36	7646.25	7650.57	7653.09	7653.16
5	7652.95	7652.01	7649.87	NM	7647.11	7645.72	7644.94	7645.23	7646.26	7650.72	7653.04	7653.06
6	7653.10	7651.91	7649.78	NM	7646.91	7645.66	7645.33	7645.12	7646.27	7651.00	7653.05	7653.09
7	7652.93	7651.87	7649.76	NM	7646.75	7645.63	7645.55	7645.13	7646.36	7651.08	7653.06	7653.46
8	7652.90	7651.81	7649.81	NM	7646.71	7645.69	7645.34	7645.14	7646.59	7651.11	7653.11	7653.56
9	7652.91	7651.76	7649.68	NM	7646.74	7645.91	7645.24	7645.18	7646.83	7651.21	7653.14	7653.32
10	7652.89	7651.74	7649.49	NM	7646.61	7645.75	7645.23	7645.30	7646.89	7651.31	7653.29	7653.21
11	7652.87	7651.85	7649.36	NM	7646.69	7645.60	7645.20	7645.46	7646.92	7651.40	7653.22	7653.27
12	7652.93	7651.68	7649.27	NM	7646.80	7645.53	7645.17	7645.33	7647.05	7651.60	7653.22	7653.17
13	7653.10	7651.60	7649.21	NM	7646.58	7645.50	7645.24	7645.32	7647.23	7651.79	7653.24	7653.10
14	7652.94	7651.51	7649.31	NM	7646.44	7645.47	7645.45	7645.24	7647.36	7651.75	7653.27	7653.42
15	7652.89	7651.43	7649.29	NM	7646.39	7645.63	7645.33	7645.35	7647.62	7651.81	7653.27	7653.41
16	7652.85	7651.34	7649.10	NM	7646.36	7645.77	7645.17	7645.23	7647.92	7651.87	7653.34	7653.09
17	7652.85	7651.44	7648.98	NM	7646.30	7645.54	7645.15	7645.45	7648.02	7651.95	7653.46	7653.40
18	7652.84	7651.47	7649.07	NM	7646.29	7645.41	7645.10	7645.60	7648.08	7652.04	7653.38	7653.20
19	7652.87	7651.28	7648.85	NM	7646.49	7645.36	7645.08	7645.67	7648.26	7652.24	7653.30	7653.14
20	7653.01	7651.20	7648.75	NM	7646.26	7645.33	7645.19	7645.49	7648.42	7652.38	7653.31	7653.13
21	7652.79	7651.07	7648.81	NM	7646.17	7645.30	7645.39	7645.39	7648.58	7652.37	7653.32	7653.37
22	7652.77	7650.99	7648.84	NM	7646.10	7645.47	7645.27	7645.39	7648.83	7652.36	7653.23	7653.38
23	7652.78	7650.90	7648.69	NM	7646.05	7645.60	7645.20	7645.62	7649.09	7652.44	7653.32	7653.13
24	7652.89	7650.99	7648.53	NM	7646.02	7645.36	7645.05	7645.77	7649.10	7652.50	7653.47	7653.11
25	7652.84	7650.99	7648.44	NM	7646.06	7645.25	7645.00	7645.85	7649.20	7652.61	7653.34	7653.01
26	7652.83	7650.81	7648.35	NM	7646.25	7645.23	7645.01	7645.87	7649.44	7652.73	7653.17	7653.09
27	7652.88	7650.64	7648.29	NM	7646.06	7645.19	7645.18	7645.76	7649.62	7652.88	7653.25	7653.14
28	7652.67	7650.58	7648.40	NM	7645.93	7645.17	7645.34	7645.67	7649.78	7652.79	7653.29	7653.39
29	7652.63	7650.59	7648.40		7645.89	7645.26	7645.13	7645.71	7649.96	7652.79	7653.28	7653.35
30	7652.55	7650.42	7648.19		7645.86	7645.44	7645.01	7645.73	7650.21	7652.83	7653.35	7653.05
31		7650.44	7648.08		7645.82		7644.99		7650.29	7652.87		7653.06

NM = No measurement due to datalogger malfunction.

RMBH-3
Water Levels (feet)

Day	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sept-23	Oct-23
1	7653.99	7653.45	7653.62	7648.92	7647.21	7647.83	7645.28	7644.77	7647.68	7651.66	7654.40	7656.31
2	7653.90	7653.52	7653.52	7648.75	7647.04	7648.20	7645.24	7645.50	7648.06	7651.45	7654.87	7655.14
3	7654.63	7654.39	7651.54	7648.69	7647.04	7646.21	7645.28	7647.02	7646.37	7651.49	7656.18	7655.10
4	NM	7655.17	7651.03	7650.40	7648.84	7645.63	7644.89	7647.20	7647.93	7651.68	7654.87	7655.56
5	7654.35	7653.49	7651.08	7650.76	7649.22	7645.76	7645.18	7645.46	7646.55	7652.23	7654.60	7655.65
6	7655.70	7653.04	7651.11	7648.95	7647.47	7645.50	7645.85	7645.06	7646.41	7653.74	7654.35	7655.63
7	7653.75	7653.42	7651.85	7648.86	7646.94	7645.64	7646.84	7645.01	7646.60	7652.50	7656.12	7656.21
8	7653.65	7652.97	7652.61	7648.55	7647.32	7646.79	7645.26	7645.60	7648.45	7652.28	NM	7656.34
9	7653.85	7652.92	7651.78	7648.24	7647.21	7647.93	7644.89	7645.28	7648.86	7652.25	NM	7655.87
10	7653.72	7653.78	7650.58	7648.08	7647.00	7646.31	7645.22	7646.71	7647.79	7652.43	NM	7655.71
11	7653.68	7654.94	7650.41	7649.96	7648.28	7645.71	7644.83	7647.24	7647.47	7652.80	NM	7655.83
12	7654.52	7653.10	7650.16	7650.23	7648.44	7645.44	7644.81	7645.56	7647.68	7654.08	NM	7655.62
13	7655.91	7652.99	7650.74	7647.87	7646.81	7645.67	7646.05	7646.04	7648.09	7654.53	NM	7655.43
14	7654.05	7652.68	NM	7647.86	7646.56	7645.59	7647.19	7645.35	7648.07	7653.24	NM	7656.17
15	7653.85	7652.52	NM	7649.91	7646.55	7647.53	7645.47	7645.93	7649.43	7653.10	NM	7656.08
16	7653.75	7652.33	7650.27	7647.88	7646.63	7647.64	7644.96	7645.09	7650.08	7653.18	NM	7655.60
17	7653.65	7654.45	7650.38	7647.62	7646.44	7645.73	7645.19	7647.08	7648.89	7653.13	NM	7656.13
18	7653.70	7654.73	7651.82	7647.26	7646.81	7645.50	7644.60	7647.37	7648.72	7653.27	NM	7655.79
19	7654.55	7653.52	7649.77	7648.74	7648.11	7645.31	7644.87	7647.47	7649.11	7654.99	NM	7655.64
20	7655.72	7652.57	7649.85	7647.47	7646.52	7645.25	7646.22	7645.53	7649.30	7655.38	7654.48	7655.74
21	7653.97	7652.35	7651.47	7648.03	7646.29	7645.44	7647.22	7645.25	7649.56	7654.03	7655.09	7656.19
22	7653.80	7652.15	7651.69	7649.22	7645.89	7647.22	7645.72	7645.47	7650.81	7653.75	7654.50	7656.23
23	7654.08	7652.00	7650.22	7647.60	7645.97	7647.17	7645.38	7647.39	7651.35	7653.91	7655.23	7655.71
24	7655.79	7654.21	7649.71	7647.58	7646.12	7645.45	7644.74	7647.66	7650.02	7654.21	7656.42	7655.59
25	7654.71	7654.21	7649.41	7649.34	7646.75	7645.12	7644.66	7647.72	7649.76	7654.29	7654.97	7655.57
26	7655.25	7652.19	7649.14	7649.28	7648.19	7645.35	7644.88	7647.77	7651.47	7655.48	7655.26	7655.54
27	7655.70	7651.99	7649.34	7647.50	7646.18	7645.17	7646.74	7645.85	7651.18	7655.88	7654.10	7655.64
28	7653.61	7652.27	7651.07	7647.30	7645.67	7645.36	7646.97	7645.66	7651.03	7654.49	7654.55	7656.14
29	7653.78	7652.79	7650.82		7645.95	7646.57	7644.97	7645.73	7652.04	7654.13	7654.45	7655.98
30	7653.54	7651.82	7649.44		7645.96	7647.15	7644.72	7645.68	7652.58	7654.14	7655.34	7655.42
31		7653.44	7649.01		7645.84		7644.96		7651.47	7654.38		7655.48

NM = No measurement due to data connectivity issues.

Well-A
Water Levels (feet)

Day	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sept-23	Oct-23
1	7811.50	7808.13	7806.09	7804.85	7804.00	7803.31	7805.92	7810.89	7814.09	7815.73	7815.86	7814.32
2	7811.36	7808.05	7806.04	7804.81	7803.98	7803.30	7806.16	7810.99	7814.18	7815.77	7815.82	7814.29
3	7811.23	7807.94	7805.99	7804.77	7803.96	7803.27	7806.39	7811.10	7814.26	7815.82	7815.80	7814.37
4	7811.08	7807.88	7805.93	7804.75	7803.92	7803.24	7806.60	7811.23	7814.35	7815.87	7815.80	7814.54
5	7810.95	7807.82	7805.87	7804.71	7803.90	7803.19	7806.81	7811.36	7814.43	7815.90	7815.75	7814.61
6	7810.80	7807.73	7805.83	7804.70	7803.88	7803.16	7807.05	7811.52	7814.52	7815.92	7815.70	7814.62
7	7810.66	7807.65	7805.77	7804.65	7803.85	7803.14	7807.28	7811.67	7814.60	7815.94	7815.66	7814.60
8	7810.53	7807.57	7805.73	7804.63	7803.83	7803.12	7807.52	7811.81	7814.68	7815.96	7815.61	7814.58
9	7810.41	7807.50	7805.69	7804.60	7803.80	7803.10	7807.76	7811.92	7814.73	7815.97	7815.56	7814.55
10	7810.27	7807.43	7805.67	7804.55	7803.77	7803.07	7808.00	7812.03	7814.79	7815.96	7815.52	7814.42
11	7810.14	7807.37	7805.66	7804.53	7803.76	7803.05	7808.24	7812.14	7814.83	7815.95	7815.46	7814.29
12	7810.02	7807.32	7805.59	7804.49	7803.73	7803.02	7808.40	7812.25	7814.86	7815.95	7815.40	7814.18
13	7809.91	7807.25	7805.55	7804.44	7803.71	7803.01	7808.56	7812.34	7814.89	7815.96	7815.36	7814.17
14	7809.78	7807.18	7805.52	7804.43	7803.68	7803.00	7808.72	7812.45	7814.97	7815.96	7815.30	7814.16
15	7809.66	7807.09	7805.51	7804.40	7803.66	7802.99	7808.90	7812.56	7815.08	7815.97	7815.23	7814.15
16	7809.54	7807.03	7805.46	7804.36	7803.65	7802.96	7809.07	7812.68	7815.12	7815.96	7815.19	7814.10
17	7809.44	7806.96	7805.41	7804.32	7803.61	7802.95	7809.24	7812.79	7815.17	7816.00	7815.13	7814.07
18	7809.33	7806.91	7805.38	7804.31	7803.59	7802.95	7809.38	7812.91	7815.20	7816.11	7815.07	7814.03
19	7809.23	7806.84	7805.32	7804.29	7803.56	7803.04	7809.50	7813.02	7815.23	7816.18	7815.02	7813.97
20	7809.12	7806.77	7805.28	7804.27	7803.56	7803.17	7809.64	7813.12	7815.27	7816.17	7814.97	7813.98
21	7809.03	7806.71	7805.25	7804.22	7803.54	7803.34	7809.78	7813.25	7815.32	7816.09	7814.92	7814.02
22	7808.93	7806.66	7805.21	7804.20	7803.52	7803.55	7809.92	7813.35	7815.35	7816.04	7814.85	7814.05
23	7808.84	7806.59	7805.17	7804.17	7803.49	7803.78	7810.04	7813.46	7815.39	7816.00	7814.80	7814.05
24	7808.73	7806.52	7805.13	7804.14	7803.47	7804.05	7810.14	7813.53	7815.49	7815.97	7814.73	7814.02
25	7808.64	7806.46	7805.10	7804.11	7803.44	7804.35	7810.25	7813.60	7815.58	7815.93	7814.65	7813.99
26	7808.56	7806.41	7805.05	7804.08	7803.43	7804.63	7810.35	7813.68	7815.60	7815.92	7814.59	7813.83
27	7808.47	7806.37	7805.02	7804.05	7803.42	7804.91	7810.45	7813.77	7815.62	7815.92	7814.55	7813.60
28	7808.39	7806.33	7804.99	7804.03	7803.39	7805.17	7810.53	7813.85	7815.64	7815.91	7814.50	7813.37
29	7808.31	7806.25	7804.96		7803.37	7805.43	7810.60	7813.94	7815.64	7815.90	7814.44	7813.11
30	7808.20	7806.20	7804.93		7803.35	7805.68	7810.69	7814.02	7815.67	7815.91	7814.37	7812.88
31		7806.15	7804.89		7803.34		7810.79		7815.70	7815.90		7812.67

Tables of Average Daily Temperature

BHBH-2
Temperature (°C)

Day	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sept-23	Oct-23
1	10.9	11.0	11.1	11.0	10.9	10.7	10.6	10.5	10.4	10.3	10.6	10.7
2	10.9	11.0	11.1	11.0	10.9	10.7	10.6	10.5	10.4	10.3	10.6	10.7
3	10.9	11.0	11.1	11.0	10.9	10.7	10.6	10.5	10.4	10.3	10.6	10.7
4	10.9	11.0	11.1	11.0	10.9	10.7	10.6	10.5	10.4	10.3	10.6	10.7
5	10.9	11.0	11.1	11.0	10.8	10.7	10.6	10.5	10.4	10.3	10.6	10.7
6	10.9	11.0	11.1	11.0	10.8	10.7	10.6	10.4	10.4	10.3	10.6	10.7
7	10.9	11.0	11.1	11.0	10.8	10.7	10.5	10.4	10.4	10.4	10.6	10.7
8	10.9	11.0	11.1	11.0	10.8	10.7	10.5	10.4	10.4	10.4	10.6	10.7
9	11.0	11.0	11.0	11.0	10.8	10.7	10.5	10.4	10.4	10.4	10.6	10.7
10	11.0	11.0	11.0	11.0	10.8	10.7	10.5	10.4	10.4	10.4	10.6	10.7
11	11.0	11.0	11.0	10.9	10.8	10.7	10.5	10.4	10.4	10.4	10.6	10.7
12	11.0	11.0	11.0	10.9	10.8	10.7	10.5	10.4	10.4	10.4	10.6	10.7
13	11.0	11.0	11.0	10.9	10.8	10.7	10.5	10.4	10.4	10.4	10.6	10.7
14	11.0	11.0	11.0	10.9	10.8	10.7	10.5	10.4	10.4	10.4	10.6	10.7
15	11.0	11.0	11.0	10.9	10.8	10.7	10.5	10.4	10.4	10.4	10.6	10.7
16	11.0	11.0	11.0	10.9	10.8	10.6	10.5	10.4	10.4	10.4	10.6	10.7
17	11.0	11.0	11.0	10.9	10.8	10.6	10.5	10.4	10.4	10.5	10.6	10.7
18	11.0	11.0	11.0	10.9	10.8	10.6	10.5	10.4	10.4	10.5	10.6	10.7
19	11.0	11.0	11.0	10.9	10.8	10.6	10.5	10.4	10.4	10.5	10.6	10.8
20	11.0	11.0	11.0	10.9	10.8	10.6	10.5	10.4	10.4	10.5	10.6	10.8
21	11.0	11.0	11.0	10.9	10.8	10.6	10.5	10.4	10.4	10.5	10.6	10.8
22	11.0	11.0	11.0	10.9	10.8	10.6	10.5	10.4	10.4	10.5	10.7	10.8
23	11.0	11.0	11.0	10.9	10.8	10.6	10.5	10.4	10.4	10.5	10.7	10.8
24	11.0	11.0	11.0	10.9	10.8	10.6	10.5	10.4	10.4	10.5	10.7	10.8
25	11.0	11.0	11.0	10.9	10.7	10.6	10.5	10.4	10.3	10.5	10.7	10.8
26	11.0	11.0	11.0	10.9	10.7	10.6	10.5	10.4	10.3	10.6	10.7	10.8
27	11.0	11.1	11.0	10.9	10.7	10.6	10.5	10.4	10.3	10.6	10.7	10.8
28	11.0	11.1	11.0	10.9	10.7	10.6	10.5	10.4	10.3	10.6	10.7	10.8
29	11.0	11.1	11.0		10.7	10.6	10.5	10.4	10.3	10.6	10.7	10.8
30	11.0	11.1	11.0		10.7	10.6	10.5	10.4	10.3	10.6	10.7	10.8
31		11.1	11.0		10.7		10.5		10.3	10.6		10.8

BHMW-1
Temperature (°C)

Day	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sept-23	Oct-23
1	10.2	10.2	10.1	10.1	10.2	10.2	10.3	10.3	10.3	10.3	10.3	10.2
2	10.1	10.1	10.1	10.1	10.2	10.2	10.3	10.3	10.3	10.3	10.3	10.2
3	10.1	10.1	10.1	10.1	10.2	10.2	10.3	10.3	10.3	10.3	10.3	10.2
4	10.1	10.1	10.1	10.1	10.2	10.2	10.3	10.3	10.3	10.3	10.3	10.2
5	10.1	10.1	10.1	10.1	10.2	10.2	10.3	10.3	10.3	10.3	10.3	10.2
6	10.1	10.1	10.1	10.1	10.2	10.2	10.3	10.3	10.3	10.3	10.3	10.2
7	10.1	10.1	10.1	10.1	10.2	10.2	10.3	10.3	10.3	10.3	10.3	10.2
8	10.1	10.1	10.1	10.1	10.2	10.2	10.3	10.3	10.3	10.3	10.3	10.2
9	10.1	10.1	10.1	10.1	10.2	10.2	10.3	10.3	10.3	10.3	10.3	10.2
10	10.1	10.1	10.1	10.1	10.2	10.2	10.3	10.3	10.3	10.3	10.3	10.2
11	10.1	10.1	10.1	10.1	10.2	10.2	10.3	10.3	10.3	10.3	10.3	10.2
12	10.1	10.1	10.1	10.1	10.2	10.2	10.3	10.3	10.3	10.3	10.2	10.2
13	10.1	10.1	10.1	10.1	10.2	10.2	10.3	10.3	10.3	10.3	10.2	10.2
14	10.1	10.1	10.1	10.1	10.2	10.2	10.3	10.3	10.3	10.3	10.2	10.2
15	10.1	10.1	10.1	10.1	10.2	10.2	10.3	10.3	10.3	10.3	10.2	10.2
16	10.1	10.1	10.1	10.1	10.2	10.2	10.3	10.3	10.3	10.3	10.2	10.2
17	10.1	10.1	10.1	10.1	10.2	10.2	10.3	10.3	10.3	10.3	10.2	10.2
18	10.1	10.1	10.1	10.2	10.2	10.2	10.3	10.3	10.3	10.3	10.2	10.2
19	10.2	10.1	10.1	10.2	10.2	10.2	10.3	10.3	10.3	10.3	10.2	10.2
20	10.2	10.1	10.1	10.2	10.2	10.2	10.3	10.3	10.3	10.3	10.2	10.2
21	10.2	10.1	10.1	10.2	10.2	10.2	10.3	10.3	10.3	10.3	10.2	10.2
22	10.2	10.1	10.1	10.2	10.2	10.2	10.3	10.3	10.3	10.3	10.2	10.2
23	10.1	10.1	10.1	10.2	10.2	10.2	10.3	10.3	10.3	10.3	10.2	10.2
24	10.1	10.1	10.1	10.2	10.2	10.2	10.3	10.3	10.3	10.3	10.2	10.2
25	10.2	10.1	10.1	10.2	10.2	10.2	10.3	10.3	10.3	10.3	10.2	10.2
26	10.2	10.1	10.1	10.2	10.2	10.3	10.3	10.3	10.3	10.3	10.2	10.2
27	10.2	10.1	10.1	10.2	10.2	10.3	10.3	10.3	10.3	10.3	10.2	10.2
28	10.1	10.1	10.1	10.2	10.2	10.3	10.3	10.3	10.3	10.3	10.2	10.2
29	10.1	10.1	10.1		10.2	10.3	10.3	10.3	10.3	10.3	10.2	10.2
30	10.2	10.1	10.1		10.2	10.3	10.3	10.3	10.3	10.3	10.2	10.2
31		10.1	10.1		10.2		10.3		10.3	10.3		10.2

BVMW-10
Temperature (°C)

Day	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sept-23	Oct-23
1	10.4	10.5	10.7	10.9	10.8	10.5	10.3	10.2	10.1	10.2	10.3	10.4
2	10.4	10.5	10.7	10.9	10.7	10.5	10.3	10.2	10.1	10.2	10.3	10.4
3	10.4	10.5	10.7	10.9	10.7	10.5	10.3	10.2	10.1	10.2	10.3	10.4
4	10.4	10.5	10.7	10.9	10.7	10.5	10.3	10.2	10.1	10.2	10.3	10.4
5	10.4	10.5	10.7	10.9	10.7	10.5	10.3	10.2	10.1	10.2	10.3	10.4
6	10.4	10.5	10.7	10.9	10.7	10.5	10.3	10.2	10.1	10.2	10.3	10.4
7	10.4	10.5	10.7	10.9	10.7	10.5	10.3	10.2	10.1	10.2	10.3	10.4
8	10.4	10.5	10.7	10.9	10.7	10.5	10.3	10.2	10.1	10.2	10.3	10.4
9	10.4	10.6	10.7	10.9	10.7	10.5	10.3	10.2	10.1	10.2	10.3	10.4
10	10.4	10.6	10.7	10.9	10.7	10.5	10.3	10.2	10.1	10.2	10.3	10.4
11	10.4	10.6	10.7	10.8	10.7	10.5	10.3	10.1	10.1	10.2	10.3	10.4
12	10.4	10.6	10.7	10.8	10.7	10.5	10.3	10.1	10.1	10.1	10.3	10.4
13	10.4	10.6	10.7	10.8	10.7	10.5	10.3	10.1	10.1	10.2	10.3	10.4
14	10.4	10.6	10.7	10.8	10.7	10.5	10.3	10.1	10.1	10.2	10.3	10.4
15	10.5	10.6	10.7	10.8	10.7	10.4	10.3	10.1	10.1	10.2	10.3	10.4
16	10.5	10.6	10.7	10.8	10.7	10.4	10.3	10.1	10.1	10.2	10.3	10.4
17	10.5	10.6	10.7	10.8	10.6	10.4	10.3	10.1	10.1	10.2	10.3	10.4
18	10.5	10.6	10.7	10.8	10.6	10.4	10.3	10.1	10.1	10.2	10.3	10.4
19	10.5	10.6	10.7	10.8	10.6	10.4	10.3	10.1	10.1	10.2	10.3	10.4
20	10.5	10.6	10.7	10.8	10.6	10.4	10.3	10.1	10.1	10.2	10.3	10.4
21	10.5	10.6	10.8	10.8	10.6	10.4	10.3	10.1	10.1	10.2	10.3	10.4
22	10.5	10.6	10.8	10.8	10.6	10.4	10.2	10.1	10.1	10.2	10.3	10.4
23	10.5	10.6	10.8	10.8	10.6	10.4	10.2	10.1	10.1	10.2	10.3	10.4
24	10.5	10.6	10.8	10.8	10.6	10.4	10.2	10.1	10.2	10.2	10.3	10.4
25	10.5	10.6	10.8	10.8	10.6	10.4	10.2	10.1	10.2	10.2	10.3	10.4
26	10.5	10.6	10.9	10.8	10.6	10.4	10.2	10.1	10.2	10.2	10.3	10.4
27	10.5	10.6	10.9	10.8	10.6	10.3	10.2	10.1	10.2	10.2	10.3	10.4
28	10.5	10.6	10.9	10.8	10.6	10.3	10.2	10.1	10.2	10.2	10.3	10.4
29	10.5	10.6	10.9		10.6	10.3	10.2	10.1	10.2	10.3	10.3	10.5
30	10.5	10.6	10.9		10.6	10.3	10.2	10.1	10.2	10.3	10.4	10.5
31		10.7	10.9		10.6		10.2		10.2	10.3		10.5

BVMW-11
Temperature (°C)

Day	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sept-23	Oct-23
1	10.7	10.6	10.6	10.5	10.6	10.5	10.5	10.4	10.4	10.3	10.7	10.7
2	10.7	10.6	10.6	10.5	10.6	10.5	10.5	10.4	10.4	10.3	10.7	10.7
3	10.7	10.6	10.6	10.5	10.6	10.5	10.5	10.4	10.4	10.4	10.7	10.7
4	10.7	10.6	10.6	10.5	10.6	10.5	10.5	10.4	10.4	10.4	10.7	10.7
5	10.7	10.6	10.6	10.5	10.6	10.5	10.5	10.4	10.4	10.5	10.7	10.7
6	10.7	10.6	10.6	10.6	10.6	10.5	10.5	10.4	10.4	10.5	10.7	10.7
7	10.7	10.6	10.6	10.5	10.6	10.5	10.5	10.4	10.4	10.5	10.7	10.7
8	10.7	10.6	10.6	10.5	10.6	10.5	10.5	10.4	10.4	10.5	10.7	10.7
9	10.7	10.6	10.6	10.5	10.6	10.5	10.4	10.4	10.4	10.5	10.7	10.7
10	10.7	10.6	10.6	10.5	10.6	10.5	10.4	10.4	10.5	10.5	10.7	10.7
11	10.7	10.6	10.6	10.6	10.6	10.5	10.4	10.4	10.4	10.5	10.7	10.7
12	10.7	10.6	10.6	10.6	10.6	10.5	10.4	10.4	10.4	10.5	10.7	10.7
13	10.6	10.6	10.6	10.6	10.6	10.5	10.5	10.4	10.4	10.5	10.7	10.7
14	10.7	10.6	10.6	10.6	10.6	10.5	10.4	10.4	10.4	10.5	10.7	10.7
15	10.7	10.6	10.6	10.6	10.6	10.5	10.4	10.4	10.5	10.6	10.7	10.7
16	10.7	10.6	10.5	10.6	10.6	10.5	10.4	10.4	10.5	10.6	10.7	10.7
17	10.7	10.6	10.6	10.6	10.6	10.5	10.4	10.4	10.5	10.6	10.7	10.7
18	10.7	10.6	10.5	10.6	10.6	10.5	10.4	10.4	10.5	10.6	10.7	10.7
19	10.7	10.6	10.6	10.6	10.6	10.5	10.4	10.4	10.5	10.6	10.7	10.7
20	10.6	10.6	10.5	10.6	10.6	10.5	10.4	10.4	10.5	10.6	10.7	10.7
21	10.7	10.6	10.5	10.6	10.6	10.5	10.4	10.4	10.5	10.6	10.7	10.7
22	10.7	10.6	10.5	10.6	10.5	10.5	10.4	10.4	10.5	10.6	10.7	10.7
23	10.7	10.6	10.5	10.6	10.5	10.5	10.4	10.4	10.5	10.6	10.7	10.7
24	10.6	10.6	10.5	10.6	10.5	10.5	10.4	10.4	10.4	10.6	10.7	10.7
25	10.6	10.6	10.5	10.6	10.5	10.5	10.4	10.4	10.4	10.6	10.7	10.7
26	10.6	10.6	10.5	10.6	10.5	10.5	10.4	10.4	10.5	10.6	10.7	10.7
27	10.6	10.6	10.5	10.6	10.5	10.5	10.4	10.4	10.5	10.6	10.7	10.7
28	10.6	10.6	10.5	10.6	10.5	10.5	10.4	10.4	10.5	10.6	10.7	10.6
29	10.6	10.6	10.5		10.5	10.5	10.4	10.4	10.5	10.6	10.7	10.6
30	10.6	10.6	10.5		10.5	10.5	10.4	10.4	10.3	10.7	10.7	10.7
31		10.6	10.5		10.5		10.4		10.3	10.7		10.7

BVMW-12
Temperature (°C)

Day	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sept-23	Oct-23
1	10.6	10.6	10.6	10.6	10.5	10.5	10.5	10.6	10.6	NM	NM	NM
2	10.7	10.6	10.6	10.6	10.5	10.5	10.5	10.6	10.6	NM	NM	NM
3	10.7	10.6	10.6	10.6	10.5	10.5	10.5	10.6	10.6	NM	NM	NM
4	10.6	10.6	10.6	10.6	10.5	10.5	10.5	10.6	10.6	NM	NM	NM
5	10.6	10.6	10.6	10.6	10.5	10.5	10.5	10.6	10.6	NM	NM	NM
6	10.6	10.6	10.6	10.6	10.5	10.5	10.5	10.6	10.6	NM	NM	NM
7	10.6	10.6	10.6	10.6	10.5	10.5	10.5	10.6	10.6	NM	NM	NM
8	10.6	10.6	10.6	10.6	10.5	10.5	10.5	10.6	10.6	NM	NM	NM
9	10.6	10.6	10.6	10.6	10.5	10.5	10.5	10.6	10.6	NM	NM	NM
10	10.6	10.6	10.6	10.6	10.5	10.5	10.5	10.6	10.6	NM	NM	NM
11	10.6	10.6	10.6	10.5	10.5	10.5	10.5	10.6	10.6	NM	NM	NM
12	10.6	10.6	10.6	10.5	10.5	10.5	10.5	10.6	10.6	NM	NM	NM
13	10.6	10.6	10.6	10.6	10.5	10.5	10.6	10.6	10.6	NM	NM	NM
14	10.6	10.6	10.6	10.5	10.5	10.5	10.6	10.6	10.6	NM	NM	NM
15	10.6	10.6	10.6	10.5	10.5	10.5	10.6	10.6	NM	NM	NM	NM
16	10.6	10.6	10.6	10.5	10.5	10.5	10.6	10.6	NM	NM	NM	NM
17	10.6	10.6	10.6	10.5	10.5	10.5	10.6	10.6	NM	NM	NM	10.3
18	10.6	10.6	10.6	10.5	10.5	10.5	10.6	10.6	NM	NM	NM	10.3
19	10.6	10.6	10.6	10.5	10.5	10.5	10.6	10.6	NM	NM	NM	10.3
20	10.6	10.6	10.6	10.5	10.5	10.5	10.6	10.6	NM	NM	NM	10.3
21	10.6	10.6	10.6	10.5	10.5	10.5	10.6	10.6	NM	NM	NM	10.3
22	10.6	10.6	10.6	10.5	10.5	10.5	10.6	10.6	NM	NM	NM	10.3
23	10.6	10.6	10.6	10.5	10.5	10.5	10.6	10.6	NM	NM	NM	10.3
24	10.6	10.6	10.6	10.5	10.5	10.5	10.6	10.6	NM	NM	NM	10.3
25	10.6	10.6	10.6	10.5	10.5	10.5	10.6	10.6	NM	NM	NM	10.3
26	10.6	10.6	10.6	10.5	10.5	10.5	10.6	10.6	NM	NM	NM	10.3
27	10.6	10.6	10.6	10.5	10.5	10.5	10.6	10.6	NM	NM	NM	10.3
28	10.6	10.6	10.5	10.5	10.5	10.5	10.6	10.6	NM	NM	NM	10.3
29	10.6	10.6	10.5		10.5	10.5	10.6	10.6	NM	NM	NM	10.3
30	10.6	10.6	10.6		10.5	10.5	10.6	10.6	NM	NM	NM	10.3
31		10.6	10.6		10.5		10.6		NM	NM		10.3

NM = No measurement due to datalogger malfunction.

BVMW-13
Temperature (°C)

Day	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sept-23	Oct-23
1	10.3	10.2	10.1	10.0	10.0	10.0	10.1	10.3	10.5	10.1	10.3	10.3
2	10.3	10.2	10.1	10.0	10.0	10.0	10.1	10.3	10.5	10.1	10.3	10.3
3	10.3	10.2	10.1	10.0	10.0	10.0	10.1	10.3	10.5	10.1	10.3	10.3
4	10.3	10.2	10.1	10.0	10.0	10.0	10.1	10.3	10.5	10.1	10.3	10.3
5	10.3	10.2	10.1	10.0	10.0	10.0	10.1	10.3	10.5	10.1	10.3	10.3
6	10.3	10.2	10.1	10.0	10.0	10.0	10.1	10.3	10.5	10.1	10.3	10.3
7	10.3	10.2	10.1	10.0	10.0	10.0	10.1	10.3	10.5	10.1	10.3	10.3
8	10.3	10.2	10.0	10.0	10.0	10.0	10.1	10.3	10.5	10.1	10.3	10.3
9	10.3	10.2	10.0	10.0	10.0	10.0	10.1	10.3	10.5	10.1	10.3	10.3
10	10.3	10.2	9.4	10.0	10.0	10.0	10.2	10.4	10.5	10.1	10.3	10.3
11	10.3	10.2	10.0	10.0	10.0	10.0	10.2	10.4	10.5	10.2	10.3	10.3
12	10.2	10.2	10.0	10.0	10.0	10.0	10.2	10.4	10.4	10.2	10.3	10.3
13	10.2	10.2	10.0	10.0	10.0	10.0	10.2	10.4	10.4	10.2	10.3	10.3
14	10.2	10.2	10.0	10.0	10.0	10.0	10.2	10.4	10.4	10.2	10.3	10.3
15	10.2	10.1	10.0	10.0	9.9	10.0	10.2	10.4	10.4	10.2	10.3	10.3
16	10.2	10.1	10.0	10.0	9.9	10.0	10.2	10.4	10.3	10.2	10.3	10.3
17	10.2	10.1	10.0	10.0	9.9	10.0	10.2	10.4	10.3	10.2	10.3	10.3
18	10.2	10.1	10.0	10.0	9.9	10.0	10.2	10.4	10.3	10.2	10.3	10.3
19	10.2	10.1	10.0	10.0	9.9	10.0	10.2	10.4	10.3	10.2	10.3	10.3
20	10.2	10.1	10.0	10.0	9.9	10.1	10.2	10.4	10.2	10.2	10.3	10.3
21	10.2	10.1	10.0	10.0	9.9	10.1	10.2	10.4	10.2	10.2	10.3	10.3
22	10.2	10.1	10.0	10.0	9.9	10.1	10.2	10.4	10.2	10.2	10.3	10.3
23	10.2	10.1	10.0	10.0	9.9	10.1	10.3	10.4	10.2	10.2	10.3	10.3
24	10.2	10.1	10.0	10.0	9.9	10.1	10.3	10.4	10.2	10.2	10.3	10.3
25	10.2	10.1	10.0	10.0	10.0	10.1	10.3	10.4	10.1	10.2	10.3	10.3
26	10.2	10.1	10.0	10.0	10.0	10.1	10.3	10.4	10.1	10.2	10.3	10.3
27	10.2	10.1	10.0	10.0	10.0	10.1	10.3	10.4	10.1	10.2	10.3	10.3
28	10.2	10.1	10.0	10.0	10.0	10.1	10.3	10.4	10.1	10.2	10.3	10.3
29	10.2	10.1	10.0		10.0	10.1	10.3	10.4	10.1	10.3	10.3	10.2
30	10.2	10.1	10.0		10.0	10.1	10.3	10.5	10.1	10.3	10.3	10.2
31		10.1	10.0		10.0		10.3		10.1	10.3		10.2

BVMW-02
Temperature (°C)

Day	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sept-23	Oct-23
1	13.2	13.1	12.7	12.4	12.2	12.1	12.0	12.1	10.4	10.3	11.6	12.9
2	13.2	13.0	12.7	12.4	12.2	12.1	12.0	12.1	10.4	10.3	11.7	12.9
3	13.2	13.0	12.7	12.4	12.2	12.1	12.0	12.1	10.3	10.3	11.7	12.9
4	13.2	13.0	12.7	12.4	12.2	12.1	12.0	12.1	10.3	10.4	11.8	13.0
5	13.2	13.0	12.7	12.4	12.2	12.1	12.0	12.0	10.2	10.4	11.8	13.0
6	13.2	13.0	12.7	12.4	12.2	12.1	12.0	12.0	10.2	10.4	11.9	13.0
7	13.2	13.0	12.6	12.4	12.2	12.1	12.0	12.0	10.2	10.5	11.9	13.0
8	13.2	13.0	12.6	12.4	12.2	12.1	12.0	12.0	10.2	10.5	12.0	13.0
9	13.2	13.0	12.6	12.4	12.2	12.1	12.0	11.9	10.1	10.6	12.0	13.0
10	13.2	12.9	12.6	12.3	12.2	12.1	12.0	11.9	10.1	10.6	12.1	13.1
11	13.2	12.9	12.6	12.3	12.2	12.1	12.0	11.8	10.1	10.7	12.1	13.1
12	13.2	12.9	12.6	12.3	12.2	12.1	12.0	11.8	10.1	10.7	12.2	13.1
13	13.2	12.9	12.6	12.3	12.2	12.1	12.0	11.7	10.1	10.7	12.2	13.1
14	13.2	12.9	12.6	12.3	12.2	12.1	12.0	11.6	10.1	10.8	12.3	13.1
15	13.2	12.9	12.6	12.3	12.2	12.1	12.0	11.6	10.1	10.8	12.3	12.8
16	13.2	12.9	12.6	12.3	12.2	12.1	12.0	11.5	10.1	10.9	12.4	12.8
17	13.2	12.9	12.5	12.3	12.2	12.1	12.0	11.4	10.1	10.9	12.4	12.8
18	13.2	12.9	12.5	12.3	12.2	12.1	12.0	11.3	10.1	11.0	12.4	12.8
19	13.2	12.8	12.5	12.3	12.2	12.1	12.0	11.2	10.1	11.0	12.5	12.8
20	13.2	12.8	12.5	12.3	12.2	12.1	12.0	11.1	10.1	11.1	12.5	12.8
21	13.1	12.8	12.5	12.3	12.2	12.1	12.0	11.1	10.1	11.1	12.6	12.8
22	13.1	12.8	12.5	12.3	12.2	12.1	12.1	11.0	10.1	11.2	12.6	12.8
23	13.1	12.8	12.5	12.3	12.2	12.1	12.1	10.9	10.1	11.2	12.7	12.8
24	13.1	12.8	12.5	12.3	12.1	12.1	12.1	10.9	10.1	11.3	12.7	12.8
25	13.1	12.8	12.5	12.3	12.1	12.1	12.1	10.8	10.1	11.3	12.7	12.8
26	13.1	12.8	12.5	12.2	12.1	12.0	12.1	10.7	10.1	11.4	12.8	12.8
27	13.1	12.7	12.5	12.2	12.1	12.0	12.1	10.7	10.2	11.4	12.8	12.8
28	13.1	12.7	12.4	12.2	12.1	12.0	12.1	10.6	10.2	11.5	12.8	12.8
29	13.1	12.7	12.4		12.1	12.0	12.1	10.5	10.2	11.5	12.8	12.8
30	13.1	12.7	12.4		12.1	12.0	12.1	10.5	10.2	11.5	12.9	12.8
31		12.7	12.4		12.1		12.1		10.2	11.6		12.8

BVMW-05
Temperature (°C)

Day	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sept-23	Oct-23
1	11.9	11.5	11.2	11.1	11.0	10.9	10.8	10.3	10.8	11.0	12.3	12.5
2	11.9	11.5	11.2	11.1	11.0	10.9	10.8	10.3	10.8	11.1	12.3	12.5
3	11.9	11.4	11.2	11.1	11.0	10.9	10.8	10.3	10.8	11.2	12.3	12.5
4	11.9	11.4	11.2	11.1	11.0	10.9	10.8	10.4	10.8	11.2	12.3	12.5
5	11.9	11.4	11.2	11.1	11.0	10.9	10.8	10.4	10.8	11.3	12.4	12.5
6	11.9	11.4	11.2	11.1	11.0	10.9	10.8	10.4	10.8	11.3	12.4	12.5
7	11.9	11.4	11.1	11.1	11.0	10.9	10.8	10.3	10.8	11.4	12.4	12.5
8	11.9	11.3	11.1	11.1	11.0	10.9	10.8	10.3	10.8	11.4	12.4	12.5
9	11.9	11.3	11.1	11.1	11.0	10.9	10.8	10.3	10.8	11.5	12.4	12.5
10	11.9	11.3	11.1	11.1	11.0	10.9	10.8	10.3	10.8	11.5	12.4	12.4
11	11.8	11.3	11.1	11.1	11.0	10.9	10.8	10.3	10.8	11.5	12.5	12.4
12	11.8	11.3	11.1	11.1	11.0	10.9	10.8	10.4	10.8	11.6	12.5	12.4
13	11.8	11.3	11.1	11.1	11.0	10.9	10.8	10.4	10.8	11.7	12.5	12.3
14	11.8	11.3	11.1	11.1	11.0	10.9	10.7	10.4	10.9	11.7	12.5	12.3
15	11.8	11.2	11.1	11.1	11.0	10.9	10.6	10.4	10.8	11.8	12.5	12.3
16	11.8	11.2	11.1	11.1	11.0	10.9	10.4	10.4	10.8	11.8	12.5	12.3
17	11.8	11.2	11.1	11.1	11.0	10.9	10.1	10.5	10.8	11.8	12.5	12.3
18	11.8	11.2	11.1	11.1	11.0	10.9	9.7	10.5	10.8	11.8	12.5	12.3
19	11.7	11.2	11.1	11.1	11.0	10.9	9.5	10.6	10.8	11.9	12.5	12.3
20	11.7	11.2	11.1	11.0	11.0	10.9	9.4	10.8	10.7	11.9	12.5	12.3
21	11.7	11.2	11.1	11.0	11.0	10.9	9.5	10.8	10.7	11.9	12.5	12.3
22	11.7	11.2	11.1	11.0	11.0	10.9	9.6	10.8	10.7	12.0	12.5	12.3
23	11.7	11.2	11.1	11.0	11.0	10.9	9.6	10.8	10.8	12.0	12.6	12.3
24	11.7	11.2	11.1	11.0	11.0	10.9	9.7	10.8	10.8	12.0	12.6	12.3
25	11.6	11.2	11.1	11.0	11.0	10.9	9.7	10.8	10.8	12.1	12.6	12.3
26	11.6	11.2	11.1	11.0	11.0	10.9	9.7	10.8	10.8	12.1	12.6	12.3
27	11.6	11.2	11.1	11.0	11.0	10.9	9.7	10.8	10.8	12.1	12.6	12.3
28	11.6	11.2	11.1	11.0	11.0	10.9	9.9	10.8	10.9	12.2	12.6	12.3
29	11.5	11.2	11.1		11.0	10.9	10.2	10.8	10.9	12.2	12.5	12.3
30	11.5	11.2	11.1		11.0	10.9	10.3	10.8	10.9	12.2	12.5	12.3
31		11.2	11.1		11.0		10.3		11.0	12.2		12.3

BVMW-08
Temperature (°C)

Day	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sept-23	Oct-23
1	10.2	10.3	10.3	10.3	NM	NM	10.0	10.0	9.9	9.9	9.8	9.8
2	10.2	10.3	10.3	10.3	NM	NM	10.0	10.0	9.9	9.8	9.8	9.8
3	10.2	10.3	10.3	10.3	NM	NM	10.0	10.0	9.9	9.9	9.8	9.8
4	10.2	10.3	10.3	10.3	NM	10.0	10.0	10.0	9.9	9.8	9.8	9.8
5	10.2	10.3	10.3	10.3	NM	10.0	10.0	10.0	9.9	9.8	9.8	9.8
6	10.2	10.3	10.3	NM	NM	10.0	10.0	10.0	9.9	9.8	9.8	9.8
7	10.2	10.3	10.3	NM	NM	10.0	10.0	10.0	9.9	9.8	9.8	9.8
8	10.2	10.3	10.3	NM	NM	10.0	10.0	10.0	9.9	9.8	9.8	9.8
9	10.2	10.3	10.3	NM	NM	10.0	10.0	10.0	9.9	9.8	9.8	9.8
10	10.2	10.3	10.3	NM	NM	10.0	10.0	10.0	9.9	9.8	9.8	9.8
11	10.2	10.3	10.3	NM	NM	10.0	10.0	10.0	9.9	9.8	9.8	9.8
12	10.2	10.3	10.3	NM	NM	10.0	10.0	10.0	9.9	9.8	9.8	9.8
13	10.2	10.3	10.3	NM	NM	10.0	10.0	10.0	9.9	9.8	9.8	9.8
14	10.2	10.3	10.3	NM	NM	10.0	10.0	10.0	9.9	9.8	9.8	9.8
15	10.2	10.3	10.3	NM	NM	10.0	10.0	10.0	9.9	9.8	9.8	9.8
16	10.2	10.3	10.3	NM	NM	10.0	10.0	10.0	9.9	9.8	9.8	9.8
17	10.2	10.3	10.3	NM	NM	10.0	10.0	10.0	9.9	9.8	9.8	9.8
18	10.2	10.3	10.3	NM	NM	10.0	10.0	10.0	9.9	9.8	9.8	9.8
19	10.2	10.3	10.3	NM	NM	10.0	10.0	10.0	9.9	9.8	9.8	9.8
20	10.2	10.3	10.3	NM	NM	10.0	10.0	10.0	9.9	9.8	9.8	9.8
21	10.2	10.3	10.3	NM	NM	10.0	10.0	10.0	9.9	9.8	9.8	9.8
22	10.2	10.3	10.3	NM	NM	10.0	10.0	10.0	9.9	9.8	9.8	9.8
23	10.2	10.3	10.3	NM	NM	10.0	10.0	10.0	9.9	9.8	9.8	9.8
24	10.3	10.3	10.3	NM	NM	10.0	10.0	10.0	9.9	9.8	9.8	9.8
25	10.3	10.3	10.3	NM	NM	10.0	10.0	9.9	9.9	9.8	9.8	9.8
26	10.3	10.3	10.3	NM	NM	10.0	10.0	9.9	9.9	9.8	9.8	9.8
27	10.3	10.3	10.3	NM	NM	10.0	10.0	9.9	9.9	9.8	9.8	9.8
28	10.3	10.3	10.3	NM	NM	10.0	10.0	9.9	9.9	9.8	9.8	9.8
29	10.3	10.3	10.3		NM	10.0	10.0	9.9	9.9	9.8	9.8	9.9
30	10.3	10.3	10.3		NM	10.0	10.0	9.9	9.9	9.8	9.8	9.9
31		10.3	10.3		NM		10.0		9.9	9.8		9.9

NM = No measurement due to datalogger malfunction.

BVMW-09
Temperature (°C)

Day	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sept-23	Oct-23
1	10.7	10.8	10.9	10.9	10.9	10.8	10.6	10.5	10.4	10.3	10.3	10.4
2	10.7	10.8	10.9	10.9	10.9	10.8	10.6	10.5	10.4	10.3	10.3	10.4
3	10.7	10.8	10.9	10.9	10.9	10.8	10.6	10.5	10.4	10.3	10.3	10.4
4	10.7	10.8	10.9	10.9	10.9	10.8	10.6	10.5	10.4	10.3	10.3	10.4
5	10.7	10.8	10.9	10.9	10.9	10.8	10.6	10.5	10.4	10.3	10.3	10.4
6	10.7	10.8	10.9	10.9	10.9	10.8	10.6	10.5	10.4	10.3	10.3	10.4
7	10.7	10.8	10.9	10.9	10.9	10.8	10.6	10.5	10.4	10.3	10.3	10.4
8	10.7	10.8	10.9	10.9	10.9	10.7	10.6	10.5	10.4	10.3	10.3	10.4
9	10.7	10.8	10.9	10.9	10.9	10.7	10.6	10.5	10.4	10.3	10.3	10.4
10	10.7	10.8	10.9	10.9	10.9	10.7	10.6	10.5	10.4	10.3	10.3	10.4
11	10.7	10.8	10.9	10.9	10.8	10.7	10.6	10.5	10.4	10.3	10.3	10.4
12	10.7	10.8	10.9	10.9	10.8	10.7	10.6	10.5	10.3	10.3	10.3	10.4
13	10.7	10.8	10.9	10.9	10.8	10.7	10.6	10.5	10.3	10.3	10.3	10.4
14	10.7	10.8	10.9	10.9	10.8	10.7	10.6	10.4	10.4	10.3	10.3	10.5
15	10.8	10.8	10.9	10.9	10.8	10.7	10.6	10.4	10.3	10.3	10.3	10.5
16	10.8	10.8	10.9	10.9	10.8	10.7	10.6	10.4	10.3	10.3	10.3	10.5
17	10.8	10.8	10.9	10.9	10.8	10.7	10.6	10.4	10.3	10.3	10.3	10.5
18	10.8	10.8	10.9	10.9	10.8	10.7	10.6	10.4	10.3	10.3	10.3	10.5
19	10.8	10.9	10.9	10.9	10.8	10.7	10.6	10.4	10.3	10.3	10.3	10.5
20	10.8	10.9	10.9	10.9	10.8	10.7	10.6	10.4	10.4	10.3	10.3	10.5
21	10.8	10.9	10.9	10.9	10.8	10.7	10.6	10.4	10.3	10.3	10.3	10.5
22	10.8	10.9	10.9	10.9	10.8	10.7	10.6	10.4	10.3	10.3	10.3	10.5
23	10.8	10.9	10.9	10.9	10.8	10.7	10.5	10.4	10.3	10.3	10.3	10.5
24	10.8	10.9	10.9	10.9	10.8	10.7	10.5	10.4	10.3	10.3	10.4	10.5
25	10.8	10.9	10.9	10.9	10.8	10.7	10.5	10.4	10.3	10.3	10.4	10.5
26	10.8	10.9	10.9	10.9	10.8	10.7	10.5	10.4	10.3	10.3	10.4	10.5
27	10.8	10.9	10.9	10.9	10.8	10.7	10.5	10.4	10.3	10.3	10.4	10.5
28	10.8	10.9	10.9	10.9	10.8	10.7	10.5	10.4	10.3	10.3	10.4	10.5
29	10.8	10.9	10.9		10.8	10.6	10.5	10.4	10.3	10.3	10.4	10.5
30	10.8	10.9	10.9		10.8	10.6	10.5	10.4	10.3	10.3	10.4	10.6
31		10.9	10.9		10.8		10.5		10.3	10.3		10.6

RMBH-1
Temperature (°C)

Day	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sept-23	Oct-23
1	10.7	10.7	10.6	10.6	10.6	10.6	10.6	10.6	10.5	10.5	10.6	10.7
2	10.7	10.6	10.6	10.6	10.6	10.6	10.6	10.6	10.5	10.5	10.6	10.7
3	10.7	10.6	10.6	10.6	10.6	10.6	10.6	10.5	10.5	10.5	10.6	10.7
4	10.7	10.6	10.6	10.6	10.6	10.6	10.6	10.6	10.5	10.5	10.6	10.7
5	10.7	10.6	10.6	10.6	10.6	10.6	10.6	10.6	10.5	10.5	10.7	10.7
6	10.7	10.6	10.6	10.6	10.6	10.6	10.6	10.6	10.5	10.6	10.7	10.7
7	10.7	10.6	10.6	10.6	10.6	10.6	10.6	10.5	10.5	10.6	10.7	10.7
8	10.7	10.6	10.6	10.6	10.6	10.6	10.6	10.5	10.5	10.6	10.7	10.7
9	10.7	10.6	10.6	10.6	10.6	10.6	10.6	10.5	10.5	10.6	10.7	10.7
10	10.7	10.6	10.6	10.6	10.6	10.6	10.6	10.5	10.5	10.6	10.7	10.7
11	10.7	10.6	10.6	10.6	10.6	10.6	10.6	10.5	10.5	10.6	10.7	10.7
12	10.7	10.6	10.6	10.6	10.6	10.6	10.6	10.5	10.5	10.6	10.7	10.7
13	10.7	10.6	10.6	10.6	10.6	10.6	10.6	10.5	10.5	10.6	10.7	10.7
14	10.7	10.6	10.6	10.6	10.6	10.6	10.6	10.5	10.5	10.6	10.7	10.7
15	10.7	10.6	10.6	10.6	10.6	10.6	10.6	10.5	10.5	10.6	10.7	10.7
16	10.7	10.6	10.6	10.6	10.6	10.6	10.6	10.5	10.5	10.6	10.7	10.7
17	10.7	10.6	10.6	10.6	10.6	10.6	10.6	10.5	10.5	10.6	10.7	10.7
18	10.7	10.6	10.6	10.6	10.6	10.6	10.6	10.5	10.5	10.6	10.7	10.7
19	10.7	10.6	10.6	10.6	10.6	10.6	10.6	10.5	10.5	10.6	10.7	10.7
20	10.7	10.6	10.6	10.6	10.6	10.6	10.6	10.5	10.5	10.6	10.7	10.7
21	10.7	10.6	10.6	10.6	10.6	10.6	10.6	10.5	10.5	10.6	10.7	10.7
22	10.7	10.6	10.6	10.6	10.6	10.6	10.6	10.5	10.5	10.6	10.7	10.7
23	10.7	10.6	10.6	10.6	10.6	10.6	10.6	10.5	10.5	10.6	10.7	10.7
24	10.7	10.6	10.6	10.6	10.6	10.6	10.6	10.5	10.5	10.6	10.7	10.7
25	10.7	10.6	10.6	10.6	10.6	10.6	10.6	10.5	10.5	10.6	10.7	10.7
26	10.7	10.6	10.6	10.6	10.6	10.6	10.6	10.5	10.5	10.6	10.7	10.7
27	10.7	10.6	10.6	10.6	10.6	10.6	10.6	10.5	10.5	10.6	10.7	10.7
28	10.7	10.6	10.6	10.6	10.6	10.6	10.6	10.5	10.5	10.6	10.7	10.7
29	10.7	10.6	10.6		10.6	10.6	10.6	10.5	10.5	10.6	10.7	10.7
30	10.7	10.6	10.6		10.6	10.6	10.6	10.5	10.5	10.6	10.7	10.7
31		10.6	10.6		10.6		10.6		10.5	10.6		10.7

RMBH-2
Temperature (°C)

Day	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sept-23	Oct-23
1	10.3	10.3	10.3	10.2	NM	10.0	10.2	10.2	10.2	10.2	10.3	10.4
2	10.4	10.3	10.2	10.2	NM	10.0	10.1	10.2	10.1		10.3	10.4
3	10.3	10.3	10.3	NM	NM	10.0	10.1	10.1	10.2	10.2	10.3	10.4
4	10.3	10.3	10.2	NM	10.1	10.1	10.1	10.2	10.2	10.1	10.4	10.5
5	10.3	10.3	10.2	NM	10.1	10.1	10.1	10.2	10.2	10.2	10.4	10.6
6	10.3	10.3	10.2	NM	10.1	10.0	10.1	10.2	10.2	10.2	10.4	10.6
7	10.3	10.3	10.2	NM	10.1	10.1	10.1	10.2	10.2	10.2	10.4	10.4
8	10.3	10.3	10.2	NM	10.1	10.1	10.2	10.2	10.1	10.2	10.4	10.4
9	10.3	10.3	10.2	NM	10.1	10.1	10.2	10.2	10.1	10.2	10.4	10.6
10	10.3	10.3	10.2	NM	10.1	10.2	10.1	10.2	10.2	10.2	10.4	10.6
11	10.3	10.3	10.2	NM	10.1	10.1	10.1	10.1	10.1	10.2	10.4	10.6
12	10.3	10.3	10.2	NM	10.1	10.1	10.1	10.2	10.1	10.2	10.4	10.6
13	10.3	10.3	10.2	NM	10.1	10.0	10.1	10.2	10.1	10.2	10.4	10.6
14	10.3	10.3	10.2	NM	10.1	10.0	10.1	10.2	10.1	10.2	10.4	10.5
15	10.3	10.3	10.2	NM	10.1	10.1	10.2	10.2	10.1	10.2	10.4	10.5
16	10.3	10.3	10.2	NM	10.1	10.1	10.2	10.2	10.1	10.2	10.4	10.6
17	10.3	10.3	10.2	NM	10.1	10.1	10.1	10.2	10.1	10.2	10.4	10.4
18	10.3	10.3	10.2	NM	10.1	10.1	10.1	10.1	10.1	10.3	10.4	10.4
19	10.3	10.3	10.2	NM	10.0	10.1	10.1	10.1	10.1	10.3	10.4	10.3
20	10.3	10.3	10.2	NM	10.1	10.1	10.1	10.2	10.1	10.3	10.4	10.4
21	10.3	10.3	10.2	NM	10.1	10.0	10.1	10.2	10.1	10.3	10.4	10.3
22	10.3	10.3	10.2	NM	10.0	10.1	10.2	10.2	10.1	10.3	10.4	10.3
23	10.3	10.3	10.2	NM	10.0	10.1	10.2	10.2	10.1	10.3	10.4	10.4
24	10.3	10.3	10.2	NM	10.1	10.2	10.1	10.1	10.2	10.3	10.4	10.4
25	10.3	10.3	10.2	NM	10.1	10.2	10.1	10.1	10.1	10.3	10.4	10.4
26	10.3	10.3	10.2	NM	10.0	10.2	10.1	10.2	10.1	10.3	10.4	10.4
27	10.3	10.3	10.2	NM	10.1	10.1	10.1	10.2	10.1	10.3	10.4	10.4
28	10.3	10.3	10.2	NM	10.1	10.1	10.1	10.2	10.1	10.3	10.4	10.3
29	10.3	10.3	10.2		10.0	10.1	10.1	10.2	10.1	10.3	10.4	10.3
30	10.3	10.3	10.2		10.0	10.1	10.2	10.2	10.2	10.3	10.4	10.4
31		10.3	10.2		10.0		10.2		10.2	10.3		10.4

NM = No measurement due to datalogger malfunction.

RMBH-3
Temperature (°C)

Day	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sept-23	Oct-23
1	8.8	8.7	8.0	8.7	8.7	8.1	8.7	8.7	8.0	8.5	8.7	8.2
2	8.7	8.7	8.0	8.7	8.8	7.9	8.7	8.5	7.8	8.5	8.5	8.6
3	8.5	8.4	8.6	8.7	8.7	8.6	8.7	7.9	8.6	8.6	8.0	8.7
4	NM	8.2	8.7	8.1	8.1	8.7	8.8	7.8	8.0	8.6	8.6	8.6
5	8.6	8.7	8.7	8.0	8.0	8.8	8.8	8.6	8.6	8.5	8.8	8.4
6	8.2	8.8	8.7	8.6	8.6	8.8	8.5	8.7	8.7	7.9	8.8	8.4
7	8.8	8.7	8.4	8.6	8.7	8.7	8.1	8.7	8.6	8.5	8.3	8.3
8	8.8	8.8	8.1	8.7	8.6	8.4	8.7	8.5	7.9	8.6	NM	8.2
9	8.8	8.8	8.4	8.7	8.6	7.9	8.8	8.7	7.8	8.7	NM	8.3
10	8.8	8.6	8.7	8.7	8.7	8.6	8.7	8.1	8.4	8.7	NM	8.4
11	8.7	8.1	8.7	8.1	8.2	8.8	8.8	7.8	8.6	8.6	NM	8.4
12	8.5	8.8	8.7	7.9	8.1	8.8	8.8	8.5	8.6	8.1	NM	8.4
13	8.1	8.8	8.5	8.7	8.7	8.8	8.4	8.4	8.5	8.0	NM	8.3
14	8.7	8.8	NM	8.7	8.7	8.8	8.0	8.6	8.6	8.6	NM	8.3
15	8.8	8.8	NM	8.1	8.7	8.2	8.7	8.4	8.0	8.7	NM	8.2
16	8.7	8.9	8.6	8.7	8.7	8.1	8.8	8.6	7.8	8.7	NM	8.4
17	8.7	8.2	8.5	8.7	8.7	8.8	8.7	8.0	8.5	8.8	NM	8.3
18	8.8	8.0	8.0	8.8	8.5	8.8	8.9	7.8	8.6	8.7	NM	8.3
19	8.5	8.5	8.8	8.4	8.1	8.8	8.8	7.8	8.5	8.0	NM	8.4
20	8.2	8.7	8.6	8.8	8.7	8.8	8.3	8.6	8.5	7.9	8.8	8.4
21	8.7	8.7	8.1	8.7	8.7	8.7	7.9	8.7	8.5	8.6	8.7	8.3
22	8.8	8.8	8.0	8.3	8.8	8.1	8.5	8.7	8.0	8.7	8.8	8.2
23	8.7	8.8	8.5	8.8	8.8	8.1	8.7	7.9	7.8	8.7	8.6	8.4
24	8.1	8.0	8.6	8.7	8.8	8.7	8.8	7.8	8.6	8.6	8.1	8.4
25	8.5	8.0	8.7	8.1	8.6	8.8	8.8	7.8	8.7	8.6	8.7	8.4
26	8.3	8.7	8.7	8.1	8.1	8.7	8.8	7.8	8.0	8.1	8.6	8.4
27	8.1	8.7	8.7	8.7	8.7	8.8	8.0	8.6	8.2	8.0	9.0	8.4
28	8.8	8.6	8.1	8.7	8.8	8.7	8.0	8.7	8.3	8.6	8.8	8.2
29	8.7	8.4	8.1		8.8	8.3	8.8	8.7	8.0	8.7	8.9	8.2
30	8.7	8.7	8.6		8.8	8.1	8.8	8.7	7.8	8.7	8.6	8.4
31		8.2	8.7		8.8		8.7		8.4	8.7		8.4

NM = No measurement due to data connectivity issues.

Well-A
Temperature (°C)

Day	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sept-23	Oct-23
1	11.4	11.4	11.3	11.3	11.2	11.2	11.2	11.1	11.1	11.2	11.2	11.3
2	11.4	11.4	11.3	11.3	11.2	11.2	11.2	11.1	11.1	11.2	11.2	11.3
3	11.4	11.4	11.3	11.2	11.2	11.2	11.2	11.1	11.1	11.2	11.2	11.3
4	11.4	11.4	11.3	11.2	11.2	11.2	11.2	11.1	11.1	11.2	11.2	11.3
5	11.4	11.4	11.3	11.2	11.2	11.2	11.2	11.1	11.1	11.2	11.2	11.3
6	11.4	11.4	11.3	11.2	11.2	11.2	11.2	11.1	11.1	11.2	11.2	11.3
7	11.4	11.4	11.3	11.2	11.2	11.2	11.2	11.1	11.1	11.2	11.2	11.3
8	11.4	11.4	11.3	11.2	11.2	11.2	11.2	11.1	11.1	11.2	11.2	11.3
9	11.4	11.4	11.3	11.2	11.2	11.2	11.2	11.1	11.1	11.2	11.2	11.3
10	11.4	11.4	11.3	11.2	11.2	11.2	11.2	11.1	11.1	11.2	11.2	11.3
11	11.4	11.3	11.3	11.2	11.2	11.2	11.2	11.1	11.1	11.2	11.3	11.3
12	11.4	11.3	11.3	11.2	11.2	11.2	11.2	11.1	11.1	11.2	11.3	11.3
13	11.4	11.3	11.3	11.2	11.2	11.2	11.2	11.1	11.1	11.2	11.3	11.3
14	11.4	11.3	11.3	11.2	11.2	11.2	11.2	11.1	11.1	11.2	11.3	11.3
15	11.4	11.3	11.3	11.2	11.2	11.2	11.2	11.1	11.1	11.2	11.3	11.3
16	11.4	11.3	11.3	11.2	11.2	11.2	11.2	11.1	11.1	11.2	11.3	11.3
17	11.4	11.3	11.3	11.2	11.2	11.2	11.2	11.1	11.1	11.2	11.3	11.3
18	11.4	11.3	11.3	11.2	11.2	11.2	11.2	11.1	11.1	11.2	11.3	11.3
19	11.4	11.3	11.3	11.2	11.2	11.2	11.2	11.1	11.1	11.2	11.3	11.3
20	11.4	11.3	11.3	11.2	11.2	11.2	11.2	11.1	11.1	11.2	11.3	11.3
21	11.4	11.3	11.3	11.2	11.2	11.2	11.2	11.1	11.1	11.2	11.3	11.3
22	11.4	11.3	11.3	11.2	11.2	11.2	11.2	11.1	11.1	11.2	11.3	11.3
23	11.4	11.3	11.3	11.2	11.2	11.2	11.2	11.1	11.1	11.2	11.3	11.3
24	11.4	11.3	11.3	11.2	11.2	11.2	11.2	11.1	11.1	11.2	11.3	11.3
25	11.4	11.3	11.3	11.2	11.2	11.2	11.1	11.1	11.1	11.2	11.3	11.3
26	11.4	11.3	11.3	11.2	11.2	11.2	11.1	11.1	11.2	11.2	11.3	11.3
27	11.4	11.3	11.3	11.2	11.2	11.2	11.1	11.1	11.2	11.2	11.3	11.3
28	11.4	11.3	11.3	11.2	11.2	11.2	11.1	11.1	11.2	11.2	11.3	11.3
29	11.4	11.3	11.3		11.2	11.2	11.1	11.1	11.2	11.2	11.3	11.3
30	11.4	11.3	11.3		11.2	11.2	11.1	11.1	11.2	11.2	11.3	11.3
31		11.3	11.3		11.2		11.1		11.2	11.2		11.3

Tables of Conductance

BHBH-2
Conductivity (μS/cm)

Day	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sept-23	Oct-23
1	320	305	308	313	318	322	326	329	332	337	328	317
2	319	305	308	313	318	322	326	329	333	336	327	317
3	318	305	308	313	318	323	326	329	333	335	327	316
4	318	305	308	314	318	323	326	329	333	333	327	316
5	317	304	308	314	319	323	326	329	333	333	327	315
6	316	304	308	314	319	323	326	330	333	332	327	315
7	316	304	309	315	319	323	326	330	333	331	326	314
8	315	304	309	316	319	323	327	330	333	330	326	314
9	315	304	309	316	319	323	327	330	333	330	326	313
10	314	304	309	317	319	323	327	330	334	329	325	313
11	313	304	310	317	319	324	327	330	334	329	325	313
12	313	304	310	317	319	324	327	330	334	329	325	312
13	312	304	310	317	320	324	327	330	335	328	325	312
14	311	304	310	317	320	324	327	331	335	328	324	312
15	311	305	310	317	320	324	327	331	336	328	324	311
16	310	305	310	317	320	324	327	331	336	328	324	310
17	310	305	310	317	320	324	327	331	337	328	323	310
18	309	305	310	317	320	325	327	331	337	328	323	310
19	309	305	310	317	320	325	327	331	337	327	323	310
20	309	305	311	316	321	325	328	331	338	327	322	309
21	308	305	311	316	321	325	328	331	338	328	322	309
22	308	305	311	316	321	325	328	331	338	327	321	309
23	307	305	311	316	321	325	328	332	339	327	321	308
24	307	306	311	317	321	325	328	332	339	327	320	308
25	307	306	311	317	321	325	328	332	339	327	320	308
26	306	306	312	317	321	325	328	332	339	327	319	308
27	306	306	312	317	322	325	328	332	339	327	319	307
28	306	307	312	317	322	326	328	332	339	327	318	307
29	306	307	312		322	326	329	332	339	327	318	307
30	305	307	312		322	326	329	332	338	328	318	306
31		307	313		322		329		338	328		306

BHMW-1
Conductivity (μS/cm)

Day	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sept-23	Oct-23
1	416	410	396	400	404	412	404	412	420	424	397	384
2	415	409	392	400	404	412	404	412	420	424	396	385
3	415	407	392	400	404	407	404	412	420	423	396	385
4	413	407	392	400	404	392	404	412	420	420	396	386
5	414	405	392	400	404	392	404	412	420	420	396	385
6	413	406	392	400	404	392	404	412	420	420	396	385
7	414	405	392	400	404	393	404	412	420	420	396	384
8	413	403	392	400	404	396	404	412	420	420	394	385
9	415	404	393	400	404	396	404	412	420	419	392	384
10	414	403	399	400	404	396	405	412	422	416	392	384
11	413	402	400	400	404	396	404	413	422	416	392	384
12	412	404	400	400	406	396	407	412	420	416	392	384
13	413	401	400	400	408	396	408	412	420	415	392	384
14	414	400	400	400	408	396	408	416	420	412	392	386
15	413	401	400	400	408	397	408	416	420	412	392	385
16	413	400	400	400	408	400	408	416	420	412	391	385
17	412	399	400	400	408	400	408	416	420	411	390	388
18	411	398	400	400	408	400	408	416	420	408	389	391
19	413	397	400	400	408	400	408	416	422	408	388	392
20	414	397	400	400	408	400	408	416	422	408	388	391
21	413	396	400	401	408	400	408	416	424	406	388	391
22	412	396	400	404	408	400	408	416	424	404	388	390
23	411	396	400	404	408	400	408	416	424	404	388	390
24	410	396	400	404	408	400	408	416	424	404	388	392
25	412	396	400	404	408	400	412	416	424	402	388	391
26	412	396	400	404	408	400	412	417	424	400	387	390
27	412	396	400	404	408	404	412	420	424	400	386	389
28	409	396	400	404	408	404	412	420	424	400	386	389
29	408	396	400		408	404	412	420	424	400	385	390
30	411	396	400		409	404	412	420	424	400	385	391
31		396	400		412		412		424	400		390

BVMW-10
Conductivity (μS/cm)

Day	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sept-23	Oct-23
1	348	340	324	316	316	320	324	328	332	336	336	336
2	348	340	324	316	316	320	324	328	332	336	336	336
3	348	337	324	316	316	320	324	328	332	336	336	336
4	348	336	324	316	316	320	324	328	332	333	336	336
5	348	336	324	316	316	320	324	328	332	332	336	336
6	348	336	324	316	316	320	324	328	332	332	336	336
7	348	336	321	316	316	320	324	328	332	332	336	336
8	348	336	320	316	316	320	324	328	332	332	336	336
9	348	335	320	316	316	320	324	328	333	332	336	336
10	348	332	320	316	316	320	324	328	334	332	336	336
11	348	332	324	316	316	320	324	328	333	332	336	336
12	348	332	324	316	316	320	324	328	336	332	336	336
13	348	332	324	316	316	320	324	332	336	335	336	336
14	348	332	324	316	316	320	325	332	336	336	336	336
15	345	332	324	316	317	322	328	332	336	336	336	336
16	344	332	324	316	320	324	328	332	336	336	336	336
17	344	331	324	316	320	324	328	332	336	336	336	336
18	344	328	324	316	320	324	328	332	336	336	336	335
19	344	328	324	316	320	324	328	332	336	336	336	332
20	344	328	324	316	320	324	328	332	336	336	336	332
21	344	328	322	316	320	324	328	332	336	336	336	332
22	344	328	324	316	320	324	328	332	336	336	336	332
23	344	328	322	316	320	324	328	332	336	336	336	332
24	344	328	316	316	320	324	328	332	336	336	336	332
25	342	328	316	316	320	324	328	332	336	336	336	332
26	340	328	316	316	320	324	328	332	336	336	336	332
27	340	328	316	316	320	324	328	332	336	336	336	332
28	340	324	316	316	320	324	328	332	336	336	336	332
29	340	324	316		320	324	328	332	336	336	336	332
30	340	324	316		320	324	328	332	336	336	336	332
31		324	316		320		328		336	336		330

RMBH-2
Conductivity (μS/cm)

Day	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sept-23	Oct-23
1	354	340	297	384	NM	240	362	380	388	372	341	359
2	351	333	292	384	NM	240	365	380	388		341	355
3	352	326	285	NM	NM	248	368	380	390	365	343	341
4	352	328	278	NM	207	243	367	380	391	366	341	355
5	351	323	270	NM	220	240	368	382	391	368	338	363
6	352	319	266	NM	231	240	372	382	389	368	332	366
7	355	318	264	NM	234	250	372	382	388	366	332	352
8	353	316	266	NM	231	275	374	384	385	364	332	355
9	351	313	322	NM	232	283	376	384	384	364	332	361
10	351	311	384	NM	232	311	376	384	387	364	332	364
11	350	316	384	NM	232	320	376	384	388	364	330	357
12	351	314	384	NM	232	299	376	386	388	364	331	362
13	352	318	384	NM	238	279	376	389	388	364	340	360
14	354	316	384	NM	236	262	376	388	388	362	341	352
15	348	312	384	NM	232	306	378	389	387	360	344	355
16	345	308	384	NM	232	333	380	391	384	356	344	361
17	344	311	384	NM	232	302	380	392	386	356	348	359
18	344	312	384	NM	232	313	380	392	388	356	350	364
19	344	311	384	NM	232	304	380	392	386	356	338	364
20	344	313	384	NM	237	288	380	390	384	356	336	364
21	348	306	384	NM	237	269	380	392	384	354	352	364
22	342	300	384	NM	236	314	381	392	384	352	349	364
23	340	292	384	NM	236	348	384	392	381	352	338	364
24	340	299	384	NM	236	312	384	392	382	352	339	364
25	340	298	384	NM	236	348	384	392	381	352	350	364
26	340	286	384	NM	236	353	384	391	380	352	340	364
27	340	291	384	NM	243	349	382	392	380	352	332	364
28	337	307	384	NM	241	350	380	392	376	350	331	364
29	335	306	384		240	351	380	391	376	346	342	364
30	340	296	384		240	358	381	388	376	342	352	364
31		298	384		240		382		377	340		364

NM = No measurement due to datalogger malfunction.

RMBH-3
Conductivity (μS/cm)

Day	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sept-22	Oct-22
1	419	405	397	395	396	397	402	406	410	419	415	372
2	419	405	397	395	396	397	402	406	410	420	415	384
3	418	404	397	395	396	398	402	405	410	420	415	399
4	NM	404	397	394	395	398	403	405	410	420	414	398
5	417	404	397	394	395	398	403	406	411	420	414	397
6	416	404	397	394	396	399	402	407	411	420	413	397
7	416	403	397	394	396	399	402	407	411	420	413	396
8	415	403	396	394	396	398	403	407	411	421	NM	396
9	415	402	397	394	396	398	403	407	412	421	NM	396
10	414	402	397	394	396	399	403	407	412	421	NM	395
11	414	401	397	394	396	399	404	406	412	420	NM	395
12	413	402	397	394	396	399	404	407	412	421	NM	395
13	412	401	396	395	396	399	403	407	413	421	NM	394
14	412	401	NM	395	396	400	403	407	413	420	NM	394
15	412	401	NM	394	396	399	404	407	414	421	NM	393
16	411	400	396	395	396	399	404	408	415	420	NM	393
17	411	400	396	395	397	400	404	407	415	420	NM	393
18	410	399	395	395	397	400	405	407	415	420	NM	393
19	410	399	396	395	396	401	404	407	415	420	NM	392
20	409	399	396	395	397	401	404	408	415	421	406	392
21	409	399	395	395	397	401	404	408	415	420	405	392
22	409	399	395	395	397	400	404	408	416	419	405	391
23	408	399	395	395	397	400	405	408	417	419	404	392
24	407	398	395	395	397	401	405	408	416	418	404	391
25	407	398	395	395	397	401	405	408	416	418	403	391
26	407	398	395	395	396	401	405	401	417	418	401	391
27	406	398	395	396	397	401	405	407	417	418	359	391
28	406	398	394	396	398	361	405	409	418	418	344	390
29	406	397	394		398	401	406	409	418	417	400	390
30	406	398	395		398	401	406	410	419	416	397	390
31		397	395		398		406		419	416		390

NM = No measurement due to data connectivity issues.

Appendix E

Water Quality Reports

To reduce file size and number of pages, all Client Sample Results, Case Narratives, and Chain of Custody forms (COCs) are provided in Appendix E. Full laboratory reports, including laboratory quality control (QC) results, are available upon request.

Case Narrative

Job ID: 380-51024-1

Laboratory: Eurofins Eaton Analytical Pomona

Narrative

Job Narrative
380-51024-1

Revision
The report being provided is a revision of the original report. The report (revision 1) is being revised due to: The lowest calibration level of the instrument was 5 µg/L. The reporting limit of 2 µg/L was outside of the calibration range. As a result, the reporting limit for the following sample(s) was raised from 2 µg/L to 5 µg/L and the associated data were reprocessed with the new reporting limit.

Partial Analytical suite: This report does not include the analysis listed below that were unable to be run within hold time. Resamples will be submitted and a new report will be sent out that includes this data.

Odor was unable to be run within hold time and was cancelled. Analysis will be recollected.

Receipt
The samples were received on 6/14/2023 7:50 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 5.5º C.

GC/MS VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC/MS Semi VOA
Method 525.2: The laboratory control sample (LCS) for preparation batch 810-63086 and analytical batch 810-63143 recovered outside control limits (28-85%) for the following analytes: Dimethoate (96%). These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

Method 525.2: The low level laboratory control sample (LLCS) for preparation batch 810-63086 and analytical batch 810-63143 recovered outside control limits (50-150%) for the following analytes: Endrin (151%). These analytes were biased high in the LLCS and were not detected in the associated samples; therefore, the data have been reported.

Method 525.2: The matrix spike (MS) recoveries for preparation batch 810-63086 and analytical batch 810-63140 were outside control limits for the following analytes: Butachlor @143% (limits 70-130%), Butylbenzylphthalate @134% (limits 70-130%), delta-BHC @133% (limits 70-130%), Dimethoate @91% (limits 28-85%), Endosulfan I @139% (limits 70-130%), Endosulfan II @141% (limits 70-130%), Pendimethalin @155% (limits 65-122%), and Pyrene @133% (limits 70-130%). Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery, except for Dimethoate @ 96%, was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

HPLC/IC
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

RAD
Methods 904.0, 9320: Radium-228 batch 616384
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.
RMBH-2 (380-51024-1), (LCS 160-616384/2-A), (MB 160-616384/1-A), (400-239137-A-4-D), (400-239137-A-4-E MS) and (400-239137-A-4-F MSD)

Methods 903.0, 9315: Radium-226 prep batch 160-616383:
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time

Job ID: 380-51024-1 (Continued)

Laboratory: Eurofins Eaton Analytical Pomona (Continued)

applied as the Activity Reference Date. RMBH-2 (380-51024-1), (LCS 160-616383/2-A), (MB 160-616383/1-A), (400-239137-A-4-A), (400-239137-A-4-B MS) and (400-239137-A-4-C MSD)

Method 900.0: Gross Alpha and Gross Beta batch 617939
The LCS recovered at (70%). The limits in our LIMS system at 75-125 reflect the requirements of a regulatory agency that represents a large amount of our work. However the samples associated with this LCS are not from this agency and are therefore held to our in-house statistical limits of (67-149%) per method requirements. The LCS passes, no further action is required
(LCS 160-617939/2-A)

Method 900.0: Gross Alpha and Gross Beta batch 617939
The detection goal was not met for the following samples due to a reduction of the sample size attributed to high residual mass: (380-51654-E-4-B) and (380-51654-E-4-E DU). Analytical results are reported with the detection limit achieved.

Method 900.0: Gross Alpha and Gross Beta batch 617939
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.
RMBH-2 (380-51024-1), (LCS 160-617939/2-A), (LCSB 160-617939/3-A), (MB 160-617939/1-A), (380-51654-E-4-B), (380-51654-E-4-E DU), (380-51654-E-4-C MS) and (380-51654-E-4-D MSBT)

Method 900.0: ABT batch 160-617939:
The spike recovery for the alpha LCS was outside the lower control limit of 75% (70%). The samples are being sent to RE.
RMBH-2 (380-51024-1)

Method 900.0: Gross Alpha and Gross Beta batch 620379
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.
RMBH-2 (380-51024-1), (LCS 160-620379/2-A), (LCSB 160-620379/3-A), (MB 160-620379/1-A), (380-51024-I-1-E DU), (380-51024-I-1-C MS) and (380-51024-I-1-D MSBT)

Method SM7500_Rn_B: Both DUP samples were canceled for the batch. The samples results are unaffected and no further action is required.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

LCMS
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry
Method 4500 CN F: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for analytical batch 380-44580 were outside control limits for one or more analytes. See QC Sample Results for detail. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.

Method 420.4: The instrument blank for analytical batch 380-45422 contained phenolic compounds greater than the method detection limit (MDL), and were not reanalyzed because sample results are ND and not negatively affected. The data have been qualified and reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Subcontract non-Sister
See attached subcontract report.

Job ID: 380-51024-1 (Continued)

Laboratory: Eurofins Eaton Analytical Pomona (Continued)

Organic Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Subcontract Work

Method 100.2 Asbestos in DW: This method was subcontracted to E CEI. The subcontract laboratory certification is different from that of the facility issuing the final report.

Client Sample Results

Client: BlueTriton Brands
Project/Site: RMBH-2

Job ID: 380-51024-1
SDG: WZ46-CORU02-017402

Client Sample ID: RMBH-2
Date Collected: 06/13/23 11:00
Date Received: 06/14/23 07:50

Lab Sample ID: 380-51024-1
Matrix: Drinking Water

Method: 524.2 - Total Trihalomethanes

Analyte	Result	Qualifier	RL		Unit	D	Analyzed	Dil Fac	Analyst
Trihalomethanes, Total	ND		0.0010		mg/L		06/22/23 08:50	1	N1R

Method: 524.2 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Analyzed	Dil Fac	Analyst
Dichlorodifluoromethane	ND		0.00050		mg/L		06/20/23 18:11	1	P3EE
Chloromethane (methyl chloride)	ND		0.00050		mg/L		06/20/23 18:11	1	P3EE
Vinyl Chloride (VC)	ND		0.00050		mg/L		06/20/23 18:11	1	P3EE
Bromomethane (Methyl Bromide)	ND		0.00050		mg/L		06/20/23 18:11	1	P3EE
Chloroethane	ND		0.00050		mg/L		06/20/23 18:11	1	P3EE
Trichlorofluoromethane (Freon 11)	ND		0.0050		mg/L		06/20/23 18:11	1	P3EE
1,1-Dichlorethylene	ND	*1	0.00050		mg/L		06/20/23 18:11	1	P3EE
Trichlorotrifluoroethane	ND		0.010		mg/L		06/20/23 18:11	1	P3EE
Carbon disulfide	ND		0.00050		mg/L		06/20/23 18:11	1	P3EE
Dichloromethane	ND		0.00050		mg/L		06/20/23 18:11	1	P3EE
trans-1,2-Dichloroethylene	ND		0.00050		mg/L		06/20/23 18:11	1	P3EE
Methyl-tert-butyl Ether (MTBE)	ND		0.0030		mg/L		06/20/23 18:11	1	P3EE
1,1-Dichloroethane	ND		0.00050		mg/L		06/20/23 18:11	1	P3EE
2-Butanone (MEK)	ND		0.0050		mg/L		06/20/23 18:11	1	P3EE
Diisopropyl ether	ND		0.0030		mg/L		06/20/23 18:11	1	P3EE
2,2-Dichloropropane	ND		0.00050		mg/L		06/20/23 18:11	1	P3EE
cis-1,2-Dichloroethylene	ND		0.00050		mg/L		06/20/23 18:11	1	P3EE
Bromochloromethane	ND		0.00050		mg/L		06/20/23 18:11	1	P3EE
Tert-butyl ethyl ether	ND		0.0030		mg/L		06/20/23 18:11	1	P3EE
1,1,1-Trichloroethane	ND		0.00050		mg/L		06/20/23 18:11	1	P3EE
4-Methyl-2-pentanone (MIBK)	ND		0.0050		mg/L		06/20/23 18:11	1	P3EE
1,2-Dichloroethane	ND		0.00050		mg/L		06/20/23 18:11	1	P3EE
1,1-Dichloropropene	ND		0.00050		mg/L		06/20/23 18:11	1	P3EE
Benzene	ND		0.00050		mg/L		06/20/23 18:11	1	P3EE
Carbon tetrachloride	ND		0.00050		mg/L		06/20/23 18:11	1	P3EE
Bromodichloromethane	ND		0.0010		mg/L		06/20/23 18:11	1	P3EE
Tert-amyl methyl ether	ND		0.0030		mg/L		06/20/23 18:11	1	P3EE
Trichloroethylene (TCE)	ND		0.00050		mg/L		06/20/23 18:11	1	P3EE
1,2-Dichloropropane	ND		0.00050		mg/L		06/20/23 18:11	1	P3EE
Bromoform	ND		0.0010		mg/L		06/20/23 18:11	1	P3EE
Dibromomethane	ND		0.00050		mg/L		06/20/23 18:11	1	P3EE
cis-1,3-Dichloropropene	ND		0.00050		mg/L		06/20/23 18:11	1	P3EE
trans-1,3-Dichloropropene	ND		0.00050		mg/L		06/20/23 18:11	1	P3EE
Toluene	ND		0.00050		mg/L		06/20/23 18:11	1	P3EE
1,1,2-Trichloroethane	ND		0.00050		mg/L		06/20/23 18:11	1	P3EE
Dibromochloromethane	ND		0.0010		mg/L		06/20/23 18:11	1	P3EE
1,3-Dichloropropane	ND		0.00050		mg/L		06/20/23 18:11	1	P3EE
Chloroform (Trichloromethane)	ND		0.0010		mg/L		06/20/23 18:11	1	P3EE
Tetrachloroethene (PCE)	ND		0.00050		mg/L		06/20/23 18:11	1	P3EE
Chlorobenzene	ND		0.00050		mg/L		06/20/23 18:11	1	P3EE
1,1,1,2-Tetrachloroethane	ND		0.00050		mg/L		06/20/23 18:11	1	P3EE
Ethylbenzene	ND		0.00050		mg/L		06/20/23 18:11	1	P3EE
m,p-Xylenes	ND		0.00050		mg/L		06/20/23 18:11	1	P3EE
Styrene	ND		0.00050		mg/L		06/20/23 18:11	1	P3EE
o-Xylene	ND		0.00050		mg/L		06/20/23 18:11	1	P3EE
1,1,2,2-Tetrachloroethane	ND		0.00050		mg/L		06/20/23 18:11	1	P3EE

Client Sample Results

Client: BlueTriton Brands
Project/Site: RMBH-2

Job ID: 380-51024-1
SDG: WZ46-CORU02-017402

Client Sample ID: RMBH-2
Date Collected: 06/13/23 11:00
Date Received: 06/14/23 07:50

Lab Sample ID: 380-51024-1
Matrix: Drinking Water

Method: 524.2 - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL		Unit	D	Analyzed	Dil Fac	Analyst
1,2,3-Trichloropropane	ND		0.00050		mg/L		06/20/23 18:11	1	P3EE
Isopropylbenzene	ND		0.00050		mg/L		06/20/23 18:11	1	P3EE
Bromobenzene	ND		0.00050		mg/L		06/20/23 18:11	1	P3EE
N-Propylbenzene	ND		0.00050		mg/L		06/20/23 18:11	1	P3EE
p-Chlorotoluene	ND		0.00050		mg/L		06/20/23 18:11	1	P3EE
Naphthalene	ND		0.00050		mg/L		06/20/23 18:11	1	P3EE
o-Chlorotoluene	ND		0.00050		mg/L		06/20/23 18:11	1	P3EE
1,3,5-Trimethylbenzene	ND		0.00050		mg/L		06/20/23 18:11	1	P3EE
tert-Butylbenzene	ND		0.00050		mg/L		06/20/23 18:11	1	P3EE
1,2,4-Trimethylbenzene	ND		0.00050		mg/L		06/20/23 18:11	1	P3EE
sec-Butylbenzene	ND		0.00050		mg/L		06/20/23 18:11	1	P3EE
m-Dichlorobenzene (1,3-DCB)	ND		0.00050		mg/L		06/20/23 18:11	1	P3EE
p-Dichlorobenzene (1,4-DCB)	ND		0.00050		mg/L		06/20/23 18:11	1	P3EE
p-Isopropyltoluene	ND		0.00050		mg/L		06/20/23 18:11	1	P3EE
o-Dichlorobenzene (1,2-DCB)	ND		0.00050		mg/L		06/20/23 18:11	1	P3EE
n-Butylbenzene	ND		0.00050		mg/L		06/20/23 18:11	1	P3EE
1,2,4-Trichlorobenzene	ND		0.00050		mg/L		06/20/23 18:11	1	P3EE
Hexachlorobutadiene	ND		0.00050		mg/L		06/20/23 18:11	1	P3EE
1,2,3-Trichlorobenzene	ND		0.00050		mg/L		06/20/23 18:11	1	P3EE
Xylenes, Total	ND		0.00050		mg/L		06/20/23 18:11	1	P3EE

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Analyzed*	*Dil Fac*	*Analyst*
1,2-Dichloroethane-d4 (Surr)	*106*		*70 - 130*	*06/20/23 18:11*	*1*	*P3EE*
4-Bromofluorobenzene (Surr)	*109*		*70 - 130*	*06/20/23 18:11*	*1*	*P3EE*
Toluene-d8 (Surr)	*91*		*70 - 130*	*06/20/23 18:11*	*1*	*P3EE*

Method: 522 - 1,4 Dioxane (GC/MS SIM)

Analyte	Result	Qualifier	RL		Unit	D	Analyzed	Dil Fac	Analyst
1,4-Dioxane	ND		0.000070		mg/L		06/30/23 15:47	1	X8AA

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Analyzed*	*Dil Fac*	*Analyst*
1,4-Dioxane-d8 (Surr)	*94*		*70 - 130*	*06/30/23 15:47*	*1*	*X8AA*

Method: 525.2 - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Analyzed	Dil Fac	Analyst
Prometon	ND	*+	0.000098		mg/L		06/21/23 15:51	1	Q8LA
Pyrene	ND		0.00049		mg/L		06/25/23 14:35	1	Q8LA
Terbacil	ND		0.000098		mg/L		06/25/23 14:35	1	Q8LA
Trifluralin	ND		0.000098		mg/L		06/25/23 14:35	1	Q8LA
Mevinphos	ND		0.000098		mg/L		06/27/23 14:30	1	Q8LA
Thiobencarb	ND		0.00098		mg/L		06/25/23 14:35	1	Q8LA
Ethoprop	ND		0.000098		mg/L		06/27/23 14:30	1	Q8LA
trans-Nonachlor	ND		0.000049		mg/L		06/25/23 14:35	1	Q8LA
4,4'-DDD	ND		0.000098		mg/L		06/25/23 14:35	1	Q8LA
Ametryn	ND		0.000098		mg/L		06/27/23 14:30	1	Q8LA
4,4'-DDE	ND		0.000098		mg/L		06/25/23 14:35	1	Q8LA
Prometryne	ND		0.0020		mg/L		06/27/23 14:30	1	Q8LA
Acetochlor	ND		0.000098		mg/L		06/25/23 14:35	1	Q8LA
Napropamide	ND		0.000098		mg/L		06/27/23 14:30	1	Q8LA
Benzo[g,h,i]perylene	ND		0.0098		mg/L		06/25/23 14:35	1	Q8LA

Client Sample ID: RMBH-2
Date Collected: 06/13/23 11:00
Date Received: 06/14/23 07:50

Lab Sample ID: 380-51024-1
Matrix: Drinking Water

Method: 525.2 - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL		Unit	D	Analyzed	Dil Fac	Analyst
Norflurazon	ND		0.000098		mg/L		06/27/23 14:30	1	Q8LA
Butachlor	ND		0.00037		mg/L		06/25/23 14:35	1	Q8LA
Hexazinone	ND		0.000098		mg/L		06/27/23 14:30	1	Q8LA
Chlorothalonil (Draconil, Bravo)	ND		0.0049		mg/L		06/25/23 14:35	1	Q8LA
Fenarimol	ND	^3+ *1	0.000098		mg/L		06/27/23 14:30	1	Q8LA
Chrysene	ND		0.0049		mg/L		06/25/23 14:35	1	Q8LA
Fluridone	ND		0.000098		mg/L		06/27/23 14:30	1	Q8LA
Diethylphthalate	ND		0.0049		mg/L		06/25/23 14:35	1	Q8LA
Dimethoate	ND		0.000098		mg/L		06/25/23 14:35	1	Q8LA
Endosulfan II (Beta)	ND		0.000098		mg/L		06/25/23 14:35	1	Q8LA
gamma-Chlordane	ND		0.000049		mg/L		06/25/23 14:35	1	Q8LA
gamma-BHC (Lindane)	ND		0.000049		mg/L		06/25/23 14:35	1	Q8LA
Parathion	ND		0.000098		mg/L		06/25/23 14:35	1	Q8LA
Fluorene	ND		0.0049		mg/L		06/25/23 14:35	1	Q8LA
Hexachlorocyclopentadiene	ND		0.00098		mg/L		06/25/23 14:35	1	Q8LA
Malathion	ND		0.000098		mg/L		06/25/23 14:35	1	Q8LA
Metribuzin	ND		0.000049		mg/L		06/25/23 14:35	1	Q8LA
Molinate	ND		0.0020		mg/L		06/25/23 14:35	1	Q8LA
Propachlor	ND		0.00049		mg/L		06/25/23 14:35	1	Q8LA
Terbuthylazine	ND		0.000098		mg/L		06/25/23 14:35	1	Q8LA
Atrazine	ND		0.00049		mg/L		06/25/23 14:35	1	Q8LA
Benz(a)anthracene	ND		0.0098		mg/L		06/25/23 14:35	1	Q8LA
Benzo[k]fluoranthene	ND		0.0098		mg/L		06/25/23 14:35	1	Q8LA
delta-BHC	ND		0.000098		mg/L		06/25/23 14:35	1	Q8LA
Dibenz(a,h)anthracene	ND		0.0049		mg/L		06/25/23 14:35	1	Q8LA
Dimethylphthalate	ND		0.0049		mg/L		06/25/23 14:35	1	Q8LA
Di-n-butyl phthalate	ND		0.0049		mg/L		06/25/23 14:35	1	Q8LA
Endosulfan I (Alpha)	ND		0.000098		mg/L		06/25/23 14:35	1	Q8LA
2,4-Dinitrotoluene	ND		0.0049		mg/L		06/25/23 14:35	1	Q8LA
2,6-Dinitrotoluene	ND		0.0049		mg/L		06/25/23 14:35	1	Q8LA
alpha-Chlordane	ND		0.000049		mg/L		06/25/23 14:35	1	Q8LA
Benzo[a]pyrene	ND		0.000098		mg/L		06/25/23 14:35	1	Q8LA
Benzo[b]fluoranthene	ND		0.0098		mg/L		06/25/23 14:35	1	Q8LA
Chlorobenzilate	ND		0.000098		mg/L		06/25/23 14:35	1	Q8LA
Chlorpyrifos	ND		0.000049		mg/L		06/25/23 14:35	1	Q8LA
Di(2-ethylhexyl)adipate	ND		0.0029		mg/L		06/25/23 14:35	1	Q8LA
Bis(2-ethylhexyl) phthalate	ND		0.0049		mg/L		06/25/23 14:35	1	Q8LA
Di-n-octyl phthalate	ND		0.0049		mg/L		06/25/23 14:35	1	Q8LA
Endosulfan sulfate	ND		0.000098		mg/L		06/25/23 14:35	1	Q8LA
EPTC	ND		0.000098		mg/L		06/25/23 14:35	1	Q8LA
Indeno[1,2,3-cd]pyrene	ND		0.0098		mg/L		06/25/23 14:35	1	Q8LA
Isophorone	ND		0.0098		mg/L		06/25/23 14:35	1	Q8LA
Pendimethalin (Penoxaline)	ND		0.000098		mg/L		06/25/23 14:35	1	Q8LA
Phenanthrene	ND		0.0049		mg/L		06/25/23 14:35	1	Q8LA
4,4'-DDT	ND		0.000098		mg/L		06/25/23 14:35	1	Q8LA
Acenaphthene	ND		0.0049		mg/L		06/25/23 14:35	1	Q8LA
Acenaphthylene	ND		0.0049		mg/L		06/25/23 14:35	1	Q8LA
Anthracene	ND		0.0049		mg/L		06/25/23 14:35	1	Q8LA
beta-BHC	ND		0.000098		mg/L		06/25/23 14:35	1	Q8LA

Client Sample ID: RMBH-2

Date Collected: 06/13/23 11:00
Date Received: 06/14/23 07:50

Lab Sample ID: 380-51024-1

Matrix: Drinking Water

Method: 525.2 - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL		Unit	D	Analyzed	Dil Fac	Analyst
Bromacil	ND		0.0098		mg/L		06/25/23 14:35	1	Q8LA
Butylbenzylphthalate	ND		0.0098		mg/L		06/25/23 14:35	1	Q8LA
Chloroneb	ND		0.000098		mg/L		06/25/23 14:35	1	Q8LA
Diazinon (Qualitative)	ND		0.000098		mg/L		06/25/23 14:35	1	Q8LA
Metolachlor	ND		0.000049		mg/L		06/25/23 14:35	1	Q8LA
Diclorvos (DDVP)	ND	^3+	0.000049		mg/L		06/25/23 14:35	1	Q8LA
Endrin aldehyde	ND		0.000098		mg/L		06/25/23 14:35	1	Q8LA
Fluoranthene	ND		0.0049		mg/L		06/25/23 14:35	1	Q8LA
Hexachlorobenzene	ND		0.00049		mg/L		06/25/23 14:35	1	Q8LA
Total Permethrin (mixed isomers)	ND		0.000098		mg/L		06/25/23 14:35	1	Q8LA
Simazine	ND		0.00098		mg/L		06/25/23 14:35	1	Q8LA

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Analyzed*	*Dil Fac*	*Analyst*
2-Nitro-m-xylene	*100*		*70 - 130*	*06/27/23 14:30*	*1*	*Q8LA*
2-Nitro-m-xylene	*110*		*70 - 130*	*06/21/23 15:51*	*1*	*Q8LA*
Triphenylphosphate	*101*		*70 - 130*	*06/27/23 14:30*	*1*	*Q8LA*
Perylene-d12	*95*		*70 - 130*	*06/27/23 14:30*	*1*	*Q8LA*
Triphenylphosphate	*106*		*70 - 130*	*06/25/23 14:35*	*1*	*Q8LA*
Perylene-d12	*95*		*70 - 130*	*06/25/23 14:35*	*1*	*Q8LA*
2-Nitro-m-xylene	*102*		*70 - 130*	*06/25/23 14:35*	*1*	*Q8LA*

Method: 525.2 - Semivolatile Organic Compounds (GC/MS) - RA

Analyte	Result	Qualifier	RL		Unit	D	Analyzed	Dil Fac	Analyst
2,4-Dinitrotoluene	ND		0.0048		mg/L		06/21/23 13:03	1	BC
4,4'-DDD	ND		0.000096		mg/L		06/21/23 13:03	1	BC
4,4'-DDE	ND		0.000096		mg/L		06/21/23 13:03	1	BC
4,4'-DDT	ND		0.000096		mg/L		06/21/23 13:03	1	BC
Acenaphthene	ND		0.0048		mg/L		06/21/23 13:03	1	BC
Acenaphthylene	ND		0.0048		mg/L		06/21/23 13:03	1	BC
Alachlor	ND		0.00096		mg/L		06/21/23 13:03	1	BC
Aldrin	ND		0.000096		mg/L		06/21/23 13:03	1	BC
alpha-Chlordane	ND		0.000096		mg/L		06/21/23 13:03	1	BC
Anthracene	ND		0.0048		mg/L		06/21/23 13:03	1	BC
Atrazine	ND		0.00048		mg/L		06/21/23 13:03	1	BC
Benzo[a]anthracene	ND		0.0096		mg/L		06/21/23 13:03	1	BC
Benzo[a]pyrene	ND		0.000096		mg/L		06/21/23 13:03	1	BC
Benzo[b]fluoranthene	ND		0.0096		mg/L		06/21/23 13:03	1	BC
Benzo[g,h,i]perylene	ND		0.0096		mg/L		06/21/23 13:03	1	BC
Benzo[k]fluoranthene	ND		0.0096		mg/L		06/21/23 13:03	1	BC
Bromacil	ND		0.0096		mg/L		06/21/23 13:03	1	BC
Butachlor	ND	F1	0.00036		mg/L		06/21/23 13:03	1	BC
Butylbenzylphthalate	ND	F1	0.0096		mg/L		06/21/23 13:03	1	BC
Chlorothalonil	ND		0.0048		mg/L		06/21/23 13:03	1	BC
Chrysene	ND		0.0048		mg/L		06/21/23 13:03	1	BC
Di(2-ethylhexyl)adipate	ND		0.0048		mg/L		06/21/23 13:03	1	BC
Di (2-ethylhexyl)phthalate	ND		0.0029		mg/L		06/21/23 13:03	1	BC
Di-n-butyl phthalate	ND		0.0048		mg/L		06/21/23 13:03	1	BC
Di-n-octyl phthalate	ND		0.0048		mg/L		06/21/23 13:03	1	BC
Diazinon	ND		0.000096		mg/L		06/21/23 13:03	1	BC
Dibenz(a,h)anthracene	ND		0.0048		mg/L		06/21/23 13:03	1	BC

Client Sample ID: RMBH-2 **Lab Sample ID: 380-51024-1**
Date Collected: 06/13/23 11:00 **Matrix: Drinking Water**
Date Received: 06/14/23 07:50

Method: 525.2 - Semivolatile Organic Compounds (GC/MS) - RA (Continued)

Analyte	Result	Qualifier	RL		Unit	D	Analyzed	Dil Fac	Analyst
Dieldrin	ND		0.000096		mg/L		06/21/23 13:03	1	BC
Diethylphthalate	ND		0.0048		mg/L		06/21/23 13:03	1	BC
Dimethoate	ND	F1 *+	0.00048		mg/L		06/21/23 13:03	1	BC
Dimethylphthalate	ND		0.0048		mg/L		06/21/23 13:03	1	BC
EPTC	ND		0.000096		mg/L		06/21/23 13:03	1	BC
Endrin	ND		0.0000096		mg/L		06/21/23 13:03	1	BC
Fluoranthene	ND		0.0048		mg/L		06/21/23 13:03	1	BC
Fluorene	ND		0.0048		mg/L		06/21/23 13:03	1	BC
gamma-BHC (Lindane)	ND		0.00019		mg/L		06/21/23 13:03	1	BC
gamma-Chlordane	ND		0.000096		mg/L		06/21/23 13:03	1	BC
Heptachlor	ND		0.000038		mg/L		06/21/23 13:03	1	BC
Heptachlor epoxide	ND		0.000019		mg/L		06/21/23 13:03	1	BC
Hexachlorobenzene	ND		0.00048		mg/L		06/21/23 13:03	1	BC
Hexachlorocyclopentadiene	ND		0.00096		mg/L		06/21/23 13:03	1	BC
Isophorone	ND		0.0096		mg/L		06/21/23 13:03	1	BC
Indeno[1,2,3-cd]pyrene	ND		0.0096		mg/L		06/21/23 13:03	1	BC
Malathion	ND		0.000096		mg/L		06/21/23 13:03	1	BC
Methoxychlor	ND		0.0096		mg/L		06/21/23 13:03	1	BC
Metolachlor	ND		0.000096		mg/L		06/21/23 13:03	1	BC
Metribuzin	ND		0.000096		mg/L		06/21/23 13:03	1	BC
Molinate	ND		0.0019		mg/L		06/21/23 13:03	1	BC
Parathion	ND		0.00048		mg/L		06/21/23 13:03	1	BC
Phenanthrene	ND		0.0048		mg/L		06/21/23 13:03	1	BC
Propachlor	ND		0.00048		mg/L		06/21/23 13:03	1	BC
Pyrene	ND	F1	0.00048		mg/L		06/21/23 13:03	1	BC
Simazine	ND		0.000096		mg/L		06/21/23 13:03	1	BC
Terbacil	ND		0.000096		mg/L		06/21/23 13:03	1	BC
Thiobencarb	ND		0.00096		mg/L		06/21/23 13:03	1	BC
trans-Nonachlor	ND		0.000096		mg/L		06/21/23 13:03	1	BC
Trifluralin	ND		0.000096		mg/L		06/21/23 13:03	1	BC
Endrin aldehyde	ND		0.000096		mg/L		06/21/23 13:03	1	BC
2,6-Dinitrotoluene	ND		0.0048		mg/L		06/21/23 13:03	1	BC
Acetochlor	ND		0.000096		mg/L		06/21/23 13:03	1	BC
beta-BHC	ND		0.000096		mg/L		06/21/23 13:03	1	BC
Chloroneb	ND		0.000096		mg/L		06/21/23 13:03	1	BC
Chlorpyrifos	ND		0.000048		mg/L		06/21/23 13:03	1	BC
delta-BHC	ND	F1	0.000096		mg/L		06/21/23 13:03	1	BC
Dichlorvos	ND		0.000048		mg/L		06/21/23 13:03	1	BC
Endosulfan I	ND	F1	0.000096		mg/L		06/21/23 13:03	1	BC
Endosulfan II	ND	F1	0.000096		mg/L		06/21/23 13:03	1	BC
Endosulfan sulfate	ND		0.000096		mg/L		06/21/23 13:03	1	BC
cis-Permethrin	ND		0.000096		mg/L		06/21/23 13:03	1	BC
trans-Permethrin	ND		0.000096		mg/L		06/21/23 13:03	1	BC
Pendimethalin	ND	F1	0.000096		mg/L		06/21/23 13:03	1	BC
Terbuthylazine	ND		0.000096		mg/L		06/21/23 13:03	1	BC
Prometon	ND		0.000096		mg/L		06/21/23 13:03	1	BC
Hexazinone	ND		0.000096		mg/L		06/21/23 13:03	1	BC
Permethrin	ND		0.000096		mg/L		06/21/23 13:03	1	BC
Chlordane (n.o.s.)	ND		0.000048		mg/L		06/21/23 13:03	1	BC

Client Sample ID: RMBH-2

Date Collected: 06/13/23 11:00
Date Received: 06/14/23 07:50

Lab Sample ID: 380-51024-1

Matrix: Drinking Water

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Analyzed*	*Dil Fac*	*Analyst*
2-Nitro-m-xylene (Surr)	*103*		*70 - 130*	*06/21/23 13:03*	*1*	*BC*
Perylene-d12 (Surr)	*88*		*70 - 130*	*06/21/23 13:03*	*1*	*BC*
Triphenylphosphate (Surr)	*117*		*70 - 130*	*06/21/23 13:03*	*1*	*BC*

Method: 548.1 - Endothall (GC/MS)

Analyte	Result	Qualifier	RL	Unit	D	Analyzed	Dil Fac	Analyst
Endothall	ND		0.045	mg/L		06/26/23 10:06	1	X8AA

Method: 504.1 - EDB, DBCP and 1,2,3-TCP (GC)

Analyte	Result	Qualifier	RL	Unit	D	Analyzed	Dil Fac	Analyst
1,2,3-Trichloropropane	ND		0.000020	mg/L		06/16/23 10:03	1	K9GY
1,2-Dibromo-3-Chloropropane	ND		0.000010	mg/L		06/16/23 10:03	1	K9GY
1,2-Dibromoethane	ND		0.000020	mg/L		06/16/23 10:03	1	K9GY

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Analyzed*	*Dil Fac*	*Analyst*
1,2-Dibromopropane (Surr)	*107*		*60 - 140*	*06/16/23 10:03*	*1*	*K9GY*

Method: 505 - Organochlorine Pesticides/PCBs (GC)

Analyte	Result	Qualifier	RL	Unit	D	Analyzed	Dil Fac	Analyst
PCB-1016	ND		0.00050	mg/L		06/20/23 17:08	1	JV
PCB-1221	ND		0.00050	mg/L		06/20/23 17:08	1	JV
PCB-1232	ND		0.00050	mg/L		06/20/23 17:08	1	JV
PCB-1242	ND		0.00050	mg/L		06/20/23 17:08	1	JV
PCB-1248	ND		0.00050	mg/L		06/20/23 17:08	1	JV
PCB-1254	ND		0.00050	mg/L		06/20/23 17:08	1	JV
PCB-1260	ND		0.00050	mg/L		06/20/23 17:08	1	JV
Chlordane (technical)	ND		0.00010	mg/L		06/20/23 17:08	1	JV
Toxaphene	ND		0.0010	mg/L		06/20/23 17:08	1	JV
Polychlorinated biphenyls, Total	ND		0.00050	mg/L		06/20/23 17:08	1	JV

Method: 515.4 - Herbicides (GC)

Analyte	Result	Qualifier	RL	Unit	D	Analyzed	Dil Fac	Analyst
2,4,5-TP (Silvex)	ND		0.0010	mg/L		07/02/23 01:32	1	DR5R
2,4,5-T	ND		0.00020	mg/L		07/02/23 01:32	1	DR5R
Dinoseb	ND		0.0020	mg/L		07/02/23 01:32	1	DR5R
2,4-D	ND		0.010	mg/L		07/02/23 01:32	1	DR5R
2,4-DB	ND		0.0020	mg/L		07/02/23 01:32	1	DR5R
Bentazon	ND		0.0020	mg/L		07/02/23 01:32	1	DR5R
Pentachlorophenol	ND		0.00020	mg/L		07/02/23 01:32	1	DR5R
Dalapon	ND		0.010	mg/L		07/02/23 01:32	1	DR5R
3,5-Dichlorobenzoic acid	ND		0.00050	mg/L		07/02/23 01:32	1	DR5R
Picloram	ND		0.0010	mg/L		07/02/23 01:32	1	DR5R
Acifluorfen	ND		0.00020	mg/L		07/02/23 01:32	1	DR5R
Dicamba	ND		0.0015	mg/L		07/02/23 01:32	1	DR5R
Dichlorprop	ND		0.00050	mg/L		07/02/23 01:32	1	DR5R
DCPA Mon/Di-Acid Degradates	ND		0.00010	mg/L		07/02/23 01:32	1	DR5R

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Analyzed*	*Dil Fac*	*Analyst*
2,4-Dichlorophenylacetic acid (Surr)	*100*		*70 - 130*	*07/02/23 01:32*	*1*	*DR5R*
2,4-Dichlorophenylacetic acid (Surr)	*98*		*70 - 130*	*07/02/23 01:32*	*1*	*DR5R*

Client Sample Results

Client Sample ID: RMBH-2
Date Collected: 06/13/23 11:00
Date Received: 06/14/23 07:50

Lab Sample ID: 380-51024-1
Matrix: Drinking Water

Method: 218.6 - Chromium, Hexavalent (Ion Chromatography)

Analyte	Result	Qualifier	RL		Unit	D	Analyzed	Dil Fac	Analyst
Hexavalent Chromium (CrVI)	ND		0.010		mg/L		06/14/23 21:33	1	YHP7

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Analyzed	Dil Fac	Analyst
Chloride	**4.0**		1.0		mg/L		06/15/23 03:18	1	VB9B
Nitrate as N	**0.84**		0.40		mg/L		06/15/23 03:18	1	VB9B
Nitrite as N	ND		0.40		mg/L		06/15/23 03:18	1	VB9B
Sulfate	**31**		0.50		mg/L		06/15/23 03:18	1	VB9B

Method: 300.1 - Disinfection By-Products, (IC)

Analyte	Result	Qualifier	RL		Unit	D	Analyzed	Dil Fac	Analyst
Bromide	**0.043**		0.0020		mg/L		06/15/23 04:27	1	VB9B

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Analyzed*	*Dil Fac*	*Analyst*
Potassium Dichloroacetate (Surr)	*104*		*90 - 115*	*06/15/23 04:27*	*1*	*VB9B*

Method: 531.2 - Carbamate Pesticides (HPLC)

Analyte	Result	Qualifier	RL		Unit	D	Analyzed	Dil Fac	Analyst
3-Hydroxycarbofuran	ND		0.0030		mg/L		06/27/23 20:46	1	UXOU
Aldicarb	ND		0.0030		mg/L		06/27/23 20:46	1	UXOU
Aldicarb sulfone	ND		0.0040		mg/L		06/27/23 20:46	1	UXOU
Aldicarb sulfoxide	ND		0.0030		mg/L		06/27/23 20:46	1	UXOU
Baygon	ND		0.00050		mg/L		06/27/23 20:46	1	UXOU
Carbaryl	ND		0.0050		mg/L		06/27/23 20:46	1	UXOU
Carbofuran (Furadan)	ND		0.0050		mg/L		06/27/23 20:46	1	UXOU
Methiocarb	ND		0.00050		mg/L		06/27/23 20:46	1	UXOU
Methomyl	ND		0.0020		mg/L		06/27/23 20:46	1	UXOU
Oxamyl (Vydate)	ND		0.020		mg/L		06/27/23 20:46	1	UXOU

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Analyzed*	*Dil Fac*	*Analyst*
BDMC	*90*		*70 - 130*	*06/27/23 20:46*	*1*	*UXOU*

Method: 547 - Glyphosate (DAI HPLC)

Analyte	Result	Qualifier	RL		Unit	D	Analyzed	Dil Fac	Analyst
Glyphosate	ND		0.025		mg/L		06/20/23 15:19	1	UD4M

Method: 549.2 - Diquat and Paraquat (HPLC)

Analyte	Result	Qualifier	RL		Unit	D	Analyzed	Dil Fac	Analyst
Diquat	ND		0.0040		mg/L		06/19/23 17:43	1	UD4M
Paraquat	ND		0.0020		mg/L		06/19/23 17:43	1	UD4M

Method: 331.0 - Perchlorate (LC/MS/MS)

Analyte	Result	Qualifier	RL		Unit	D	Analyzed	Dil Fac	Analyst
Perchlorate	ND		0.0010		mg/L		06/15/23 17:49	1	UKDT

Method: 533 - Perfluorinated and Polyfluorinated Alkyl Substances in Drinking Water

Analyte	Result	Qualifier	RL		Unit	D	Analyzed	Dil Fac	Analyst
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		0.0000020		mg/L		07/06/23 12:59	1	UKYM
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	ND		0.0000020		mg/L		07/06/23 12:59	1	UKYM

Client Sample ID: RMBH-2
Date Collected: 06/13/23 11:00
Date Received: 06/14/23 07:50

Lab Sample ID: 380-51024-1
Matrix: Drinking Water

Method: 533 - Perfluorinated and Polyfluorinated Alkyl Substances in Drinking Water (Continued)

Analyte	Result	Qualifier	RL		Unit	D	Analyzed	Dil Fac	Analyst
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.0000020		mg/L		07/06/23 12:59	1	UKYM
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	ND		0.0000020		mg/L		07/06/23 12:59	1	UKYM
Perfluorobutanesulfonic acid (PFBS)	ND		0.0000020		mg/L		07/06/23 12:59	1	UKYM
Perfluorodecanoic acid (PFDA)	ND		0.0000020		mg/L		07/06/23 12:59	1	UKYM
Perfluorododecanoic acid (PFDoA)	ND		0.0000020		mg/L		07/06/23 12:59	1	UKYM
Perfluoroheptanoic acid (PFHpA)	ND		0.0000020		mg/L		07/06/23 12:59	1	UKYM
Perfluorohexanesulfonic acid (PFHxS)	ND		0.0000020		mg/L		07/06/23 12:59	1	UKYM
Perfluorohexanoic acid (PFHxA)	ND		0.0000020		mg/L		07/06/23 12:59	1	UKYM
Perfluorononanoic acid (PFNA)	ND		0.0000020		mg/L		07/06/23 12:59	1	UKYM
Perfluorooctanesulfonic acid (PFOS)	ND		0.0000020		mg/L		07/06/23 12:59	1	UKYM
Perfluorooctanoic acid (PFOA)	ND		0.0000020		mg/L		07/06/23 12:59	1	UKYM
Perfluoroundecanoic acid (PFUnA)	ND		0.0000020		mg/L		07/06/23 12:59	1	UKYM
Perfluorobutanoic acid (PFBA)	ND		0.0000020		mg/L		07/06/23 12:59	1	UKYM
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		0.0000020		mg/L		07/06/23 12:59	1	UKYM
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		0.0000020		mg/L		07/06/23 12:59	1	UKYM
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		0.0000020		mg/L		07/06/23 12:59	1	UKYM
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		0.0000020		mg/L		07/06/23 12:59	1	UKYM
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		0.0000020		mg/L		07/06/23 12:59	1	UKYM
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		0.0000020		mg/L		07/06/23 12:59	1	UKYM
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		0.0000020		mg/L		07/06/23 12:59	1	UKYM
Perfluoropentanoic acid (PFPeA)	ND		0.0000020		mg/L		07/06/23 12:59	1	UKYM
Perfluoroheptanesulfonic acid (PFHpS)	ND		0.0000020		mg/L		07/06/23 12:59	1	UKYM
Perfluoropentanesulfonic acid (PFPeS)	ND		0.0000020		mg/L		07/06/23 12:59	1	UKYM

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Analyzed*	*Dil Fac*	*Analyst*
13C3 HFPO-DA	*96*		*50 - 200*	*07/06/23 12:59*	*1*	*UKYM*
13C6 PFDA	*118*		*50 - 200*	*07/06/23 12:59*	*1*	*UKYM*
13C5 PFHxA	*115*		*50 - 200*	*07/06/23 12:59*	*1*	*UKYM*
13C4 PFHpA	*119*		*50 - 200*	*07/06/23 12:59*	*1*	*UKYM*
13C8 PFOA	*120*		*50 - 200*	*07/06/23 12:59*	*1*	*UKYM*
13C9 PFNA	*124*		*50 - 200*	*07/06/23 12:59*	*1*	*UKYM*
13C7 PFUnA	*121*		*50 - 200*	*07/06/23 12:59*	*1*	*UKYM*
13C2 PFDoA	*125*		*50 - 200*	*07/06/23 12:59*	*1*	*UKYM*
13C4 PFBA	*123*		*50 - 200*	*07/06/23 12:59*	*1*	*UKYM*
13C5 PFPeA	*119*		*50 - 200*	*07/06/23 12:59*	*1*	*UKYM*
13C3 PFBS	*122*		*50 - 200*	*07/06/23 12:59*	*1*	*UKYM*
13C3 PFHxS	*115*		*50 - 200*	*07/06/23 12:59*	*1*	*UKYM*
13C8 PFOS	*122*		*50 - 200*	*07/06/23 12:59*	*1*	*UKYM*
13C2-4:2-FTS	*153*		*50 - 200*	*07/06/23 12:59*	*1*	*UKYM*
13C2-6:2-FTS	*149*		*50 - 200*	*07/06/23 12:59*	*1*	*UKYM*
13C2-8:2-FTS	*144*		*50 - 200*	*07/06/23 12:59*	*1*	*UKYM*

Client Sample Results

Client: BlueTriton Brands
Project/Site: RMBH-2

Job ID: 380-51024-1
SDG: WZ46-CORU02-017402

Client Sample ID: RMBH-2

Date Collected: 06/13/23 11:00
Date Received: 06/14/23 07:50

Lab Sample ID: 380-51024-1

Matrix: Drinking Water

Method: 537.1 - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Analyzed	Dil Fac	Analyst
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	ND		0.0000020		mg/L		06/17/23 21:15	1	UKDT
Perfluorooctanesulfonic acid (PFOS)	ND		0.0000020		mg/L		06/17/23 21:15	1	UKDT
Perfluoroundecanoic acid (PFUnA)	ND		0.0000020		mg/L		06/17/23 21:15	1	UKDT
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.0000020		mg/L		06/17/23 21:15	1	UKDT
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.0000020		mg/L		06/17/23 21:15	1	UKDT
Perfluorohexanoic acid (PFHxA)	ND		0.0000020		mg/L		06/17/23 21:15	1	UKDT
Perfluorododecanoic acid (PFDoA)	ND		0.0000020		mg/L		06/17/23 21:15	1	UKDT
Perfluorooctanoic acid (PFOA)	ND		0.0000020		mg/L		06/17/23 21:15	1	UKDT
Perfluorodecanoic acid (PFDA)	ND		0.0000020		mg/L		06/17/23 21:15	1	UKDT
Perfluorohexanesulfonic acid (PFHxS)	ND		0.0000020		mg/L		06/17/23 21:15	1	UKDT
Perfluorobutanesulfonic acid (PFBS)	ND		0.0000020		mg/L		06/17/23 21:15	1	UKDT
Perfluoroheptanoic acid (PFHpA)	ND		0.0000020		mg/L		06/17/23 21:15	1	UKDT
Perfluorononanoic acid (PFNA)	ND		0.0000020		mg/L		06/17/23 21:15	1	UKDT
Perfluorotetradecanoic acid (PFTA)	ND		0.0000020		mg/L		06/17/23 21:15	1	UKDT
Perfluorotridecanoic acid (PFTrDA)	ND		0.0000020		mg/L		06/17/23 21:15	1	UKDT
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	ND		0.0000020		mg/L		06/17/23 21:15	1	UKDT
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		0.0000020		mg/L		06/17/23 21:15	1	UKDT
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.0000020		mg/L		06/17/23 21:15	1	UKDT

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Analyzed*	*Dil Fac*	*Analyst*
d5-NEtFOSAA	*105*		*70 - 130*	*06/17/23 21:15*	*1*	*UKDT*
13C2 PFHxA	*104*		*70 - 130*	*06/17/23 21:15*	*1*	*UKDT*
13C2 PFDA	*102*		*70 - 130*	*06/17/23 21:15*	*1*	*UKDT*
13C3-GenX	*89*		*70 - 130*	*06/17/23 21:15*	*1*	*UKDT*

Method: 1613B - Tetra Chlorinated Dioxin (GC/MS/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyzed	Dil Fac	Analyst
2,3,7,8-TCDD	ND		0.0000000048		mg/L		07/14/23 17:29	1	GH6R

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Analyzed*	*Dil Fac*	*Analyst*
13C-2,3,7,8-TCDD	*55*		*31 - 137*	*07/14/23 17:29*	*1*	*GH6R*

Method: 200.7 - Metals (ICP)

Analyte	Result	Qualifier	RL		Unit	D	Analyzed	Dil Fac	Analyst
Calcium	**51**		1.0		mg/L		06/20/23 14:20	1	AC
Iron	ND		0.10		mg/L		06/20/23 14:20	1	AC
Magnesium	**15**		0.50		mg/L		06/20/23 14:20	1	AC
Potassium	**2.1**		1.0		mg/L		06/20/23 14:20	1	AC
Sodium	**7.0**		1.0		mg/L		06/20/23 14:20	1	AC

Method: 200.8 - Mercury (ICP/MS)

Analyte	Result	Qualifier	RL		Unit	D	Analyzed	Dil Fac	Analyst
Hg	ND		0.00020		mg/L		06/16/23 23:28	1	J9ZD

1
2
3
4
5
6
7
8

Client Sample ID: RMBH-2

Lab Sample ID: 380-51024-1

Date Collected: 06/13/23 11:00
Date Received: 06/14/23 07:50
Matrix: Drinking Water

Method: 200.8 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL		Unit	D	Analyzed	Dil Fac	Analyst
Aluminum	ND		0.050		mg/L		06/29/23 17:39	1	ULAL
Selenium	ND		0.0050		mg/L		06/29/23 17:39	1	ULAL
Antimony	ND		0.0050		mg/L		06/29/23 17:39	1	ULAL
Arsenic	ND		0.0020		mg/L		06/29/23 17:39	1	ULAL
Barium	ND		0.10		mg/L		06/29/23 17:39	1	ULAL
Beryllium	ND		0.0010		mg/L		06/29/23 17:39	1	ULAL
Cadmium	ND		0.0010		mg/L		06/29/23 17:39	1	ULAL
Chromium	ND		0.0050		mg/L		06/29/23 17:39	1	ULAL
Copper	ND		0.050		mg/L		06/29/23 17:39	1	ULAL
Lead	ND		0.0020		mg/L		06/29/23 17:39	1	ULAL
Manganese	ND		0.020		mg/L		06/29/23 17:39	1	ULAL
Molybdenum	ND		0.0020		mg/L		06/29/23 17:39	1	ULAL
Nickel	ND		0.010		mg/L		06/29/23 17:39	1	ULAL
Silver	ND		0.010		mg/L		06/29/23 17:39	1	ULAL
Thallium	ND		0.0010		mg/L		06/29/23 17:39	1	ULAL
Uranium	**0.0053**		0.0010		mg/L		06/29/23 17:39	1	ULAL
Zinc	ND		0.050		mg/L		06/29/23 17:39	1	ULAL

Analyte	Result	Qualifier	RL		Unit	D	Analyzed	Dil Fac	Analyst
Uranium	**3.5**		0.67		pCi/L		06/29/23 17:39	1	ULAL

Method: SM 2340B - Total Hardness (as CaCO3) by calculation

Analyte	Result	Qualifier	RL		Unit	D	Analyzed	Dil Fac	Analyst
Hardness as calcium carbonate	**190**		5.0		mg/L		06/28/23 14:41	1	T8RV
Calcium hardness as CaCO3	**130**		3.0		mg/L		06/28/23 14:41	1	T8RV

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Analyzed	Dil Fac	Analyst
Turbidity	**0.10**		0.10		NTU		06/14/23 09:45	1	GP4S
Langelier Index at 25C	**0.57**				LangSU		06/21/23 14:30	1	UWAH
Phenols, Total	ND	^2	0.0010		mg/L		06/23/23 16:03	1	MIA8
Cyanide	ND		0.10		mg/L		06/19/23 09:43	1	GP4S
Color, Apparent	ND		3.0		Color Units		06/14/23 11:22	1	UFU5
Alkalinity as CaCO3	**160**		2.0		mg/L		06/17/23 01:45	1	D5MQ
Bicarbonate ion as HCO3	**200**		2.4		mg/L		06/17/23 01:45	1	D5MQ
Carbonate as CO3	ND		1.2		mg/L		06/17/23 01:45	1	D5MQ
Specific Conductance	**390**		2.0		umhos/cm		06/17/23 01:45	1	D5MQ
Total Dissolved Solids	**230**		20		mg/L		06/14/23 19:50	1	XLG4
Carbon Dioxide, Free	**2.3**		2.0		mg/L		06/19/23 19:55	1	UWAH
Fluoride	**0.52**		0.10		mg/L		06/16/23 16:59	1	D5MQ
pH	**8.1**	**HF**	0.01		SU		06/17/23 01:45	1	D5MQ
Orthophosphate as P	ND		0.10		mg/L		06/15/23 07:48	1	UFU5
N-POC	**1.0**		0.20		mg/L		06/23/23 07:37	1	UWAH
Methylene Blue Active Substances	ND		0.10		mg/L		06/14/23 23:23	1	PK4Q

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDA	Unit	Analyzed	Dil Fac	Analyst
Gross Alpha	**3.88**		2.75	2.79	3.00	2.47	pCi/L	07/17/23 18:49	1	SCB
Gross Beta	**1.41**		1.38	1.39	4.00	1.25	pCi/L	07/17/23 18:49	1	SCB

Client Sample Results

Client: BlueTriton Brands
Project/Site: RMBH-2

Job ID: 380-51024-1
SDG: WZ46-CORU02-017402

Client Sample ID: RMBH-2

Date Collected: 06/13/23 11:00
Date Received: 06/14/23 07:50

Lab Sample ID: 380-51024-1

Matrix: Drinking Water

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDA	Unit	Analyzed	Dil Fac	Analyst
Radium-226	**0.0793**		0.0750	0.0753	1.00	0.0719	pCi/L	07/12/23 11:32	1	SCB

Carrier	*%Yield*	*Qualifier*	*Limits*	*Analyzed*	*Dil Fac*	*Analyst*
Ba Carrier	*88.5*		*30 - 110*	*07/12/23 11:32*	*1*	*SCB*

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDA	Unit	Analyzed	Dil Fac	Analyst
Radium-228	**1.36**		0.511	0.526	1.00	0.383	pCi/L	07/05/23 16:18	1	SCB

Carrier	*%Yield*	*Qualifier*	*Limits*	*Analyzed*	*Dil Fac*	*Analyst*
Ba Carrier	*88.5*		*30 - 110*	*07/05/23 16:18*	*1*	*SCB*
Y Carrier	*82.6*		*30 - 110*	*07/05/23 16:18*	*1*	*SCB*

Method: SM7500_Rn_B - Radon

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDA	Unit	Analyzed	Dil Fac	Analyst
Radon 222	**776**		29.5		100	12.3	pCi/L	06/16/23 14:03	1	SS

Client: BlueTriton Brands
5772 Jurupa St
Ontario, CA 91761
Attention: Tam Pham

Report Date: 10/09/2023

Parameter	Method	Reporting Limit	Result	Unit
Sample ID: RMBH-2		**Sample #: 380-51024-1**		
Primary Inorganics				
Antimony	200.8	0.0050	ND	mg/L
Arsenic	200.8	0.0020	ND	mg/L
Barium	200.8	0.10	ND	mg/L
Beryllium	200.8	0.0010	ND	mg/L
Cadmium	200.8	0.0010	ND	mg/L
Chromium	200.8	0.0050	ND	mg/L
Cyanide	4500 CN F	0.10	ND	mg/L
Fluoride	SM 4500 F C	0.10	0.52	mg/L
Lead	200.8	0.0020	ND	mg/L
Hg	200.8	0.00020	ND	mg/L
Nickel	200.8	0.010	ND	mg/L
Nitrate as N	300.0	0.40	0.84	mg/L
Nitrite as N	300.0	0.40	ND	mg/L
Selenium	200.8	0.0050	ND	mg/L
Thallium	200.8	0.0010	ND	mg/L
Secondary Inorganics				
Alkalinity as CaCO3	SM 2320B	2.0	160	mg/L
Aluminum	200.8	0.050	ND	mg/L
Bromide	300.1	0.0020	0.043	mg/L
Calcium	200.7	1.0	51	mg/L
Carbon Dioxide, Free	SM 4500 CO2 D	2.0	2.3	mg/L
Chloride	300.0	1.0	4.0	mg/L
Copper	200.8	0.050	ND	mg/L
Methylene Blue Active Substances	SM 5540C	0.10	ND	mg/L
Calcium hardness as CaCO3	SM 2340B	3.0	130	mg/L
Hardness as calcium carbonate	SM 2340B	5.0	190	mg/L
Iron	200.7	0.10	ND	mg/L
Magnesium	200.7	0.50	15	mg/L
Manganese	200.8	0.020	ND	mg/L
pH	SM 4500 H+ B	0.01	8.1	SU
Potassium	200.7	1.0	2.1	mg/L
Silver	200.8	0.010	ND	mg/L
Sodium	200.7	1.0	7.0	mg/L
Specific Conductance	SM 2510B	2.0	390	umhos/cn
Sulfate	300.0	0.50	31	mg/L
Total Dissolved Solids	SM 2540C	20	230	mg/L
Uranium	200.8	0.0010	0.0053	mg/L

ND - Not detected at the specified limit.

Client: BlueTriton Brands
5772 Jurupa St
Ontario, CA 91761
Attention: Tam Pham

Report Date: 10/09/2023

Parameter	Method	Reporting Limit	Result	Unit
Zinc	200.8	0.050	ND	mg/L
Physical				
Turbidity	180.1	0.10	0.10	NTU
Volatile Organic Compounds				
Benzene	524.2	0.00050	ND	mg/L
Bromobenzene	524.2	0.00050	ND	mg/L
Bromochloromethane	524.2	0.00050	ND	mg/L
Bromodichloromethane	524.2	0.0010	ND	mg/L
Bromoform	524.2	0.0010	ND	mg/L
Bromomethane (Methyl Bromide)	524.2	0.00050	ND	mg/L
n-Butylbenzene	524.2	0.00050	ND	mg/L
sec-Butylbenzene	524.2	0.00050	ND	mg/L
tert-Butylbenzene	524.2	0.00050	ND	mg/L
Carbon tetrachloride	524.2	0.00050	ND	mg/L
Chlorobenzene	524.2	0.00050	ND	mg/L
Chloroethane	524.2	0.00050	ND	mg/L
Chloroform (Trichloromethane)	524.2	0.0010	ND	mg/L
Chloromethane (methyl chloride)	524.2	0.00050	ND	mg/L
o-Chlorotoluene	524.2	0.00050	ND	mg/L
p-Chlorotoluene	524.2	0.00050	ND	mg/L
Dibromochloromethane	524.2	0.0010	ND	mg/L
Dibromomethane	524.2	0.00050	ND	mg/L
o-Dichlorobenzene (1,2-DCB)	524.2	0.00050	ND	mg/L
m-Dichlorobenzene (1,3-DCB)	524.2	0.00050	ND	mg/L
p-Dichlorobenzene (1,4-DCB)	524.2	0.00050	ND	mg/L
Dichlorodifluoromethane	524.2	0.00050	ND	mg/L
1,1-Dichloroethane	524.2	0.00050	ND	mg/L
1,2-Dichloroethane	524.2	0.00050	ND	mg/L
1,1-Dichlorethylene	524.2	0.00050	ND	mg/L
cis-1,2-Dichloroethylene	524.2	0.00050	ND	mg/L
trans-1,2-Dichloroethylene	524.2	0.00050	ND	mg/L
1,2-Dichloropropane	524.2	0.00050	ND	mg/L
1,3-Dichloropropane	524.2	0.00050	ND	mg/L
2,2-Dichloropropane	524.2	0.00050	ND	mg/L
1,1-Dichloropropene	524.2	0.00050	ND	mg/L
cis-1,3-Dichloropropene	524.2	0.00050	ND	mg/L
trans-1,3-Dichloropropene	524.2	0.00050	ND	mg/L
Diisopropyl ether	524.2	0.0030	ND	mg/L
Ethylbenzene	524.2	0.00050	ND	mg/L
Hexachlorobutadiene	524.2	0.00050	ND	mg/L

ND - Not detected at the specified limit.

Eurofins Eaton Analytical Pomona
941 Corporate Center Drive
Pomona, CA 91768-2642

Laboratory Data
Job #: 380-51024-1

Client: BlueTriton Brands
5772 Jurupa St
Ontario, CA 91761
Attention: Tam Pham

Report Date: 10/09/2023

Parameter	Method	Reporting Limit	Result	Unit
Isopropylbenzene	524.2	0.00050	ND	mg/L
p-Isopropyltoluene	524.2	0.00050	ND	mg/L
4-Methyl-2-pentanone (MIBK)	524.2	0.0050	ND	mg/L
Methyl-tert-butyl Ether (MTBE)	524.2	0.0030	ND	mg/L
2-Butanone (MEK)	524.2	0.0050	ND	mg/L
Dichloromethane	524.2	0.00050	ND	mg/L
Naphthalene	524.2	0.00050	ND	mg/L
N-Propylbenzene	524.2	0.00050	ND	mg/L
Styrene	524.2	0.00050	ND	mg/L
Tert-amyl methyl ether	524.2	0.0030	ND	mg/L
Tert-butyl ethyl ether	524.2	0.0030	ND	mg/L
1,1,1,2-Tetrachloroethane	524.2	0.00050	ND	mg/L
1,1,2,2-Tetrachloroethane	524.2	0.00050	ND	mg/L
Tetrachloroethene (PCE)	524.2	0.00050	ND	mg/L
Toluene	524.2	0.00050	ND	mg/L
1,2,3-Trichlorobenzene	524.2	0.00050	ND	mg/L
1,2,4-Trichlorobenzene	524.2	0.00050	ND	mg/L
1,1,1-Trichloroethane	524.2	0.00050	ND	mg/L
1,1,2-Trichloroethane	524.2	0.00050	ND	mg/L
Trichloroethylene (TCE)	524.2	0.00050	ND	mg/L
Trichlorofluoromethane (Freon 11)	524.2	0.0050	ND	mg/L
Trichlorotrifluoroethane	524.2	0.010	ND	mg/L
1,2,3-Trichloropropane	504.1	0.000020	ND	mg/L
1,2,3-Trichloropropane	524.2	0.00050	ND	mg/L
1,2,4-Trimethylbenzene	524.2	0.00050	ND	mg/L
1,3,5-Trimethylbenzene	524.2	0.00050	ND	mg/L
Vinyl Chloride (VC)	524.2	0.00050	ND	mg/L
Xylenes, Total	524.2	0.00050	ND	mg/L
m,p-Xylenes	524.2	0.00050	ND	mg/L
o-Xylene	524.2	0.00050	ND	mg/L
Trihalomethanes, Total	524.2	0.0010	ND	mg/L
Carbon disulfide	524.2	0.00050	ND	mg/L
EDB and DBCP				
1,2-Dibromo-3-Chloropropane	504.1	0.000010	ND	mg/L
1,2-Dibromoethane	504.1	0.000020	ND	mg/L
Pesticides and PCBs				
Alachlor	525.2	0.00096	ND	mg/L
Aldrin	525.2	0.000096	ND	mg/L
Dieldrin	525.2	0.000096	ND	mg/L
Endrin	525.2	0.0000096	ND	mg/L

ND - Not detected at the specified limit.

Client: BlueTriton Brands
5772 Jurupa St
Ontario, CA 91761
Attention: Tam Pham

Report Date: 10/09/2023

Parameter	Method	Reporting Limit	Result	Unit
Heptachlor	525.2	0.000038	ND	mg/L
Heptachlor epoxide	525.2	0.000019	ND	mg/L
gamma-BHC (Lindane)	525.2	0.000049	ND	mg/L
gamma-BHC (Lindane)	525.2	0.00019	ND	mg/L
Methoxychlor	525.2	0.0096	ND	mg/L
Polychlorinated biphenyls, Total	505	0.00050	ND	mg/L
PCB-1016	505	0.00050	ND	mg/L
PCB-1221	505	0.00050	ND	mg/L
PCB-1232	505	0.00050	ND	mg/L
PCB-1242	505	0.00050	ND	mg/L
PCB-1248	505	0.00050	ND	mg/L
PCB-1254	505	0.00050	ND	mg/L
PCB-1260	505	0.00050	ND	mg/L
Toxaphene	505	0.0010	ND	mg/L
Herbicides				
2,4,5-T	515.4	0.00020	ND	mg/L
2,4,5-TP (Silvex)	515.4	0.0010	ND	mg/L
2,4-D	515.4	0.010	ND	mg/L
2,4-DB	515.4	0.0020	ND	mg/L
Dichlorprop	515.4	0.00050	ND	mg/L
Acifluorfen	515.4	0.00020	ND	mg/L
Bentazon	515.4	0.0020	ND	mg/L
Dalapon	515.4	0.010	ND	mg/L
3,5-Dichlorobenzoic acid	515.4	0.00050	ND	mg/L
DCPA Mon/Di-Acid Degradates	515.4	0.00010	ND	mg/L
Dicamba	515.4	0.0015	ND	mg/L
Dinoseb	515.4	0.0020	ND	mg/L
Pentachlorophenol	515.4	0.00020	ND	mg/L
Picloram	515.4	0.0010	ND	mg/L
Semivolatile Organic Compounds				
Acenaphthene	525.2	0.0049	ND	mg/L
Acenaphthene	525.2	0.0048	ND	mg/L
Acenaphthylene	525.2	0.0049	ND	mg/L
Acenaphthylene	525.2	0.0048	ND	mg/L
Acetochlor	525.2	0.000096	ND	mg/L
Acetochlor	525.2	0.000098	ND	mg/L
alpha-Chlordane	525.2	0.000096	ND	mg/L
alpha-Chlordane	525.2	0.000049	ND	mg/L
Anthracene	525.2	0.0048	ND	mg/L
Anthracene	525.2	0.0049	ND	mg/L

ND - Not detected at the specified limit.

Client: BlueTriton Brands
5772 Jurupa St
Ontario, CA 91761
Attention: Tam Pham

Report Date: 10/09/2023

Parameter	Method	Reporting Limit	Result	Unit
Atrazine	525.2	0.00048	ND	mg/L
Atrazine	525.2	0.00049	ND	mg/L
Benzo[a]anthracene	525.2	0.0096	ND	mg/L
Benz(a)anthracene	525.2	0.0098	ND	mg/L
Benzo[a]pyrene	525.2	0.000096	ND	mg/L
Benzo[a]pyrene	525.2	0.000098	ND	mg/L
Benzo[g,h,i]perylene	525.2	0.0096	ND	mg/L
Benzo[g,h,i]perylene	525.2	0.0098	ND	mg/L
Benzo[b]fluoranthene	525.2	0.0096	ND	mg/L
Benzo[b]fluoranthene	525.2	0.0098	ND	mg/L
Benzo[k]fluoranthene	525.2	0.0096	ND	mg/L
Benzo[k]fluoranthene	525.2	0.0098	ND	mg/L
beta-BHC	525.2	0.000098	ND	mg/L
beta-BHC	525.2	0.000096	ND	mg/L
Butachlor	525.2	0.00037	ND	mg/L
Butachlor	525.2	0.00036	ND	mg/L
Butylbenzylphthalate	525.2	0.0096	ND	mg/L
Butylbenzylphthalate	525.2	0.0098	ND	mg/L
Chlorobenzilate	525.2	0.000098	ND	mg/L
Chloroneb	525.2	0.000098	ND	mg/L
Chloroneb	525.2	0.000096	ND	mg/L
Chlorothalonil (Draconil, Bravo)	525.2	0.0049	ND	mg/L
Chlorothalonil	525.2	0.0048	ND	mg/L
Chlorpyrifos	525.2	0.000049	ND	mg/L
Chlorpyrifos	525.2	0.000048	ND	mg/L
Chrysene	525.2	0.0049	ND	mg/L
Chrysene	525.2	0.0048	ND	mg/L
Bromacil	525.2	0.0096	ND	mg/L
Bromacil	525.2	0.0098	ND	mg/L
4,4'-DDD	525.2	0.000096	ND	mg/L
4,4'-DDD	525.2	0.000098	ND	mg/L
4,4'-DDE	525.2	0.000096	ND	mg/L
4,4'-DDE	525.2	0.000098	ND	mg/L
4,4'-DDT	525.2	0.000098	ND	mg/L
4,4'-DDT	525.2	0.000096	ND	mg/L
delta-BHC	525.2	0.000098	ND	mg/L
delta-BHC	525.2	0.000096	ND	mg/L
Dibenz(a,h)anthracene	525.2	0.0048	ND	mg/L
Dibenz(a,h)anthracene	525.2	0.0049	ND	mg/L
Diethylphthalate	525.2	0.0049	ND	mg/L
Diethylphthalate	525.2	0.0048	ND	mg/L

ND - Not detected at the specified limit.

eurofins | Environment Testing

Eurofins Eaton Analytical South Bend
941 Corporate Center Drive
Pomona, CA 91768-2642

Laboratory Data
Job #: 380-51024-1

Client: BlueTriton Brands
5772 Jurupa St
Ontario, CA 91761
Attention: Tam Pham

Report Date: 10/09/2023

Parameter	Method	Reporting Limit	Result	Unit
Diazinon	525.2	0.000096	ND	mg/L
Diazinon (Qualitative)	525.2	0.000098	ND	mg/L
Diclorvos (DDVP)	525.2	0.000049	ND	mg/L
Dichlorvos	525.2	0.000048	ND	mg/L
Dimethoate	525.2	0.000098	ND	mg/L
Dimethoate	525.2	0.00048	ND	mg/L
Di-n-butyl phthalate	525.2	0.0048	ND	mg/L
Di-n-butyl phthalate	525.2	0.0049	ND	mg/L
2,4-Dinitrotoluene	525.2	0.0048	ND	mg/L
2,4-Dinitrotoluene	525.2	0.0049	ND	mg/L
Di-n-octyl phthalate	525.2	0.0048	ND	mg/L
Di-n-octyl phthalate	525.2	0.0049	ND	mg/L
2,6-Dinitrotoluene	525.2	0.0049	ND	mg/L
2,6-Dinitrotoluene	525.2	0.0048	ND	mg/L
Di(2-ethylhexyl)adipate	525.2	0.0048	ND	mg/L
Di(2-ethylhexyl)adipate	525.2	0.0029	ND	mg/L
Dimethylphthalate	525.2	0.0049	ND	mg/L
Dimethylphthalate	525.2	0.0048	ND	mg/L
Endosulfan I (Alpha)	525.2	0.000098	ND	mg/L
Endosulfan I	525.2	0.000096	ND	mg/L
Endosulfan II (Beta)	525.2	0.000098	ND	mg/L
Endosulfan II	525.2	0.000096	ND	mg/L
Endosulfan sulfate	525.2	0.000098	ND	mg/L
Endosulfan sulfate	525.2	0.000096	ND	mg/L
Endrin aldehyde	525.2	0.000096	ND	mg/L
Endrin aldehyde	525.2	0.000098	ND	mg/L
EPTC	525.2	0.000096	ND	mg/L
EPTC	525.2	0.000098	ND	mg/L
Fluoranthene	525.2	0.0048	ND	mg/L
Fluoranthene	525.2	0.0049	ND	mg/L
Fluorene	525.2	0.0049	ND	mg/L
Fluorene	525.2	0.0048	ND	mg/L
gamma-Chlordane	525.2	0.000049	ND	mg/L
gamma-Chlordane	525.2	0.000096	ND	mg/L
Hexachlorobenzene	525.2	0.00048	ND	mg/L
Hexachlorobenzene	525.2	0.00049	ND	mg/L
Hexachlorocyclopentadiene	525.2	0.00098	ND	mg/L
Hexachlorocyclopentadiene	525.2	0.00096	ND	mg/L
Indeno[1,2,3-cd]pyrene	525.2	0.0096	ND	mg/L
Indeno[1,2,3-cd]pyrene	525.2	0.0098	ND	mg/L
Isophorone	525.2	0.0096	ND	mg/L

ND - Not detected at the specified limit.

Client: BlueTriton Brands
5772 Jurupa St
Ontario, CA 91761
Attention: Tam Pham

Report Date: 10/09/2023

Parameter	Method	Reporting Limit	Result	Unit
Isophorone	525.2	0.0098	ND	mg/L
Malathion	525.2	0.000098	ND	mg/L
Malathion	525.2	0.000096	ND	mg/L
Metolachlor	525.2	0.000096	ND	mg/L
Metolachlor	525.2	0.000049	ND	mg/L
Metribuzin	525.2	0.000049	ND	mg/L
Metribuzin	525.2	0.000096	ND	mg/L
Molinate	525.2	0.0020	ND	mg/L
Molinate	525.2	0.0019	ND	mg/L
trans-Nonachlor	525.2	0.000049	ND	mg/L
trans-Nonachlor	525.2	0.000096	ND	mg/L
Parathion	525.2	0.000098	ND	mg/L
Parathion	525.2	0.00048	ND	mg/L
Pendimethalin (Penoxaline)	525.2	0.000098	ND	mg/L
Pendimethalin	525.2	0.000096	ND	mg/L
Total Permethrin (mixed isomers)	525.2	0.000098	ND	mg/L
Permethrin	525.2	0.000096	ND	mg/L
Phenanthrene	525.2	0.0049	ND	mg/L
Phenanthrene	525.2	0.0048	ND	mg/L
Propachlor	525.2	0.00049	ND	mg/L
Propachlor	525.2	0.00048	ND	mg/L
Pyrene	525.2	0.00049	ND	mg/L
Pyrene	525.2	0.00048	ND	mg/L
Simazine	525.2	0.000096	ND	mg/L
Simazine	525.2	0.00098	ND	mg/L
Terbuthylazine	525.2	0.000098	ND	mg/L
Terbuthylazine	525.2	0.000096	ND	mg/L
Terbacil	525.2	0.000098	ND	mg/L
Terbacil	525.2	0.000096	ND	mg/L
Thiobencarb	525.2	0.00098	ND	mg/L
Thiobencarb	525.2	0.00096	ND	mg/L
Trifluralin	525.2	0.000098	ND	mg/L
Trifluralin	525.2	0.000096	ND	mg/L
Carbamates				
Aldicarb	531.2	0.0030	ND	mg/L
Aldicarb sulfone	531.2	0.0040	ND	mg/L
Aldicarb sulfoxide	531.2	0.0030	ND	mg/L
Baygon	531.2	0.00050	ND	mg/L
Carbaryl	531.2	0.0050	ND	mg/L
Carbofuran (Furadan)	531.2	0.0050	ND	mg/L

ND - Not detected at the specified limit.

Client: BlueTriton Brands
5772 Jurupa St
Ontario, CA 91761
Attention: Tam Pham

Report Date: 10/09/2023

Parameter	Method	Reporting Limit	Result	Unit
3-Hydroxycarbofuran	531.2	0.0030	ND	mg/L
Methiocarb	531.2	0.00050	ND	mg/L
Methomyl	531.2	0.0020	ND	mg/L
Other Organics				
Glyphosate	547	0.025	ND	mg/L
Endothall	548.1	0.045	ND	mg/L
Diquat	549.2	0.0040	ND	mg/L
Paraquat	549.2	0.0020	ND	mg/L
Ametryn	525.2	0.000098	ND	mg/L
Ethoprop	525.2	0.000098	ND	mg/L
Fenarimol	525.2	0.000098	ND	mg/L
Fluridone	525.2	0.000098	ND	mg/L
Hexazinone	525.2	0.000098	ND	mg/L
Hexazinone	525.2	0.000096	ND	mg/L
Mevinphos	525.2	0.000098	ND	mg/L
Napropamide	525.2	0.000098	ND	mg/L
Norflurazon	525.2	0.000098	ND	mg/L
Prometon	525.2	0.000098	ND	mg/L
Prometon	525.2	0.000096	ND	mg/L
Prometryne	525.2	0.0020	ND	mg/L
Other Compounds				
Perchlorate	331.0	0.0010	ND	mg/L
Gross Alpha	900.0	3.00	3.88	pCi/L
Gross Beta	900.0	4.00	1.41	pCi/L
Radon 222	SM7500_Rn_B	100	776	pCi/L
Radium-226	903.0	1.00	0.0793	pCi/L
Radium-228	904.0	1.00	1.36	pCi/L
2,3,7,8-TCDD	1613B	0.0000000048	ND	mg/L
Perfluorooctanesulfonic acid (PFOS)	533	0.0000020	ND	mg/L
Perfluorooctanesulfonic acid (PFOS)	537.1	0.0000020	ND	mg/L
Perfluorobutanoic acid (PFBA)	533	0.0000020	ND	mg/L
Perfluorooctanoic acid (PFOA)	533	0.0000020	ND	mg/L
Perfluorooctanoic acid (PFOA)	537.1	0.0000020	ND	mg/L
Perfluoropentanoic acid (PFPeA)	533	0.0000020	ND	mg/L
Perfluorohexanoic acid (PFHxA)	533	0.0000020	ND	mg/L
Perfluorohexanoic acid (PFHxA)	537.1	0.0000020	ND	mg/L
Perfluoroheptanoic acid (PFHpA)	537.1	0.0000020	ND	mg/L
Perfluoroheptanoic acid (PFHpA)	533	0.0000020	ND	mg/L
Perfluorononanoic acid (PFNA)	533	0.0000020	ND	mg/L
Perfluorononanoic acid (PFNA)	537.1	0.0000020	ND	mg/L

ND - Not detected at the specified limit.

Client: BlueTriton Brands
5772 Jurupa St
Ontario, CA 91761
Attention: Tam Pham

Report Date: 10/09/2023

Parameter	Method	Reporting Limit	Result	Unit
Perfluorodecanoic acid (PFDA)	533	0.0000020	ND	mg/L
Perfluorodecanoic acid (PFDA)	537.1	0.0000020	ND	mg/L
Perfluorohexanesulfonic acid (PFHxS)	537.1	0.0000020	ND	mg/L
Perfluorohexanesulfonic acid (PFHxS)	533	0.0000020	ND	mg/L
N-ethylperfluorooctanesulfonamidoacetic acid	537.1	0.0000020	ND	mg/L
11-Chloroeicosafluoro-3-oxaundecane-1-sulfo	533	0.0000020	ND	mg/L
11-Chloroeicosafluoro-3-oxaundecane-1-sulfo	537.1	0.0000020	ND	mg/L
9-Chlorohexadecafluoro-3-oxanonane-1-sulfo	537.1	0.0000020	ND	mg/L
9-Chlorohexadecafluoro-3-oxanonane-1-sulfo	533	0.0000020	ND	mg/L
Perfluorobutanesulfonic acid (PFBS)	537.1	0.0000020	ND	mg/L
Perfluorobutanesulfonic acid (PFBS)	533	0.0000020	ND	mg/L
Hexavalent Chromium (CrVI)	218.6	0.010	ND	mg/L
4,8-Dioxa-3H-perfluorononanoic acid (ADONA	537.1	0.0000020	ND	mg/L
4,8-Dioxa-3H-perfluorononanoic acid (ADONA	533	0.0000020	ND	mg/L
Perfluorotetradecanoic acid (PFTA)	537.1	0.0000020	ND	mg/L
Perfluorotridecanoic acid (PFTrDA)	537.1	0.0000020	ND	mg/L
Perfluoroundecanoic acid (PFUnA)	533	0.0000020	ND	mg/L
Perfluoroundecanoic acid (PFUnA)	537.1	0.0000020	ND	mg/L
Hexafluoropropylene Oxide Dimer Acid (HFPC	537.1	0.0000020	ND	mg/L
Hexafluoropropylene Oxide Dimer Acid (HFPC	533	0.0000020	ND	mg/L
N-POC	SM 5310C	0.20	1.0	mg/L
Molybdenum	200.8	0.0020	ND	mg/L
1,4-Dioxane	522	0.000070	ND	mg/L
Other Unclassified Analytes				
Color, Apparent	SM 2120B	3.0	ND	Color Uni
Phenols, Total	420.4	0.0010	ND	mg/L
Orthophosphate as P	SM 4500 P E	0.10	ND	mg/L
Oxamyl (Vydate)	531.2	0.020	ND	mg/L
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8	533	0.0000020	ND	mg/L
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4	533	0.0000020	ND	mg/L
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6	533	0.0000020	ND	mg/L
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	533	0.0000020	ND	mg/L
Perfluoro (2-ethoxyethane) sulfonic acid (PFEI	533	0.0000020	ND	mg/L
Perfluoro-3-methoxypropanoic acid (PFMPA)	533	0.0000020	ND	mg/L
Perfluoro-4-methoxybutanoic acid (PFMBA)	533	0.0000020	ND	mg/L
Perfluoroheptanesulfonic acid (PFHpS)	533	0.0000020	ND	mg/L
Perfluoropentanesulfonic acid (PFPeS)	533	0.0000020	ND	mg/L
Di (2-ethylhexyl)phthalate	525.2	0.0029	ND	mg/L
Bicarbonate ion as HCO3	SM 2320B	2.4	200	mg/L
N-methylperfluorooctanesulfonamidoacetic aci	537.1	0.0000020	ND	mg/L

ND - Not detected at the specified limit.

Eurofins Eaton Analytical Pomona
941 Corporate Center Drive
Pomona, CA 91768-2642

Laboratory Data
Job #: 380-51024-1

Client: BlueTriton Brands
5772 Jurupa St
Ontario, CA 91761
Attention: Tam Pham

Report Date: 10/09/2023

Parameter	Method	Reporting Limit	Result	Unit
Langelier Index at 25C	2330B		0.57	LangSU
Bis(2-ethylhexyl) phthalate	525.2	0.0049	ND	mg/L
Carbonate as CO3	SM 2320B	1.2	ND	mg/L
Perfluorododecanoic acid (PFDoA)	533	0.0000020	ND	mg/L
Perfluorododecanoic acid (PFDoA)	537.1	0.0000020	ND	mg/L
cis-Permethrin	525.2	0.000096	ND	mg/L
trans-Permethrin	525.2	0.000096	ND	mg/L
Chlordane (n.o.s.)	525.2	0.000048	ND	mg/L
Chlordane (technical)	505	0.00010	ND	mg/L

ND - Not detected at the specified limit.

Eurofins Eaton Analytical Pomona
941 Corporate Center Drive
Pomona, CA 91768-2642
Phone: 626-386-1100

W230590

Chain of Custody Record

W4266 ①

eurofins Environment Testing

Client Information (Sub Contract Lab)

Sampler:

Lab PM: Berry, Vanessa

Carrier Tracking No(s):

COC No: 380-58024.1

Client Contact: Shipping/Receiving

Phone:

E-Mail: Vanessa.Berry@et.eurofinsus.com

State of Origin: Colorado

Page: Page 1 of 1

Company: Eurofins CEI Inc

Accreditations Required (See note): ISO/IEC 17025 - A2LA; NELAP - New Jersey; NELAP - New Y ...

Job #: 380-51024-1

Address: 730 SE Maynard Road, ,

Due Date Requested: 7/12/2023

City: Cary

TAT Requested (days):

State, Zip: NC, 27511

Phone:

PO #:

Email:

WO #:

Project Name: Source water

Project #: 38004147

Site:

SSOW#:

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Y - Trizma
	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	SUB (100.2 Asbestos in DW)/ 100.2 Asbestos in DW	Total Number of containers	Special Instructions/Note:
				Preservation Code:					
RMBH-2 (380-51024-1)	6/13/23	11:00 Mountain		rinking Wate			X	1	3.6°C

eurofins | CEI Accept Samples

CG 6/15/23 9:50

Note: Since laboratory accreditations are subject to change, Eurofins Eaton Analytical, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Eaton Analytical, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Eaton Analytical, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Eaton Analytical, LLC.

Possible Hazard Identification

Unconfirmed

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For ______ Months*

Deliverable Requested: I, II, III, IV, Other (specify)

Primary Deliverable Rank: 1

Special Instructions/QC Requirements:

Empty Kit Relinquished by:

Date:

Time:

Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
MKV	6-14-23 14:10	EEA-POM	CG	6/15/23 9:30	

Custody Seals Intact: Δ Yes Δ No

Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks:

6452 4636 1341

eurofins
CEI

July 12, 2023

Eurofins Eaton Analytical
941 Corporate Center Drive
Pomona, CA 91768

CLIENT PROJECT:	Source Water, 38004147, 380-51024-1
LAB CODE:	W230590

Dear Customer:

Enclosed are asbestos analysis results for TEM drinking water samples received at our laboratory on June 15, 2023. The samples were analyzed for asbestos using transmission electron microscopy (TEM) per the US EPA 100.2 Method.

The current EPA regulatory limit for asbestos in drinking water is 7 million fibers per liter (MFL, > 10 µm in length). The analytical sensitivity for the EPA 100.2 method is 0.2 MFL.

Thank you for your business and we look forward to continuing good relations.

Kind Regards,

Tianbao Bai

Tianbao Bai, Ph.D., CIH
Laboratory Director

eurofins | CEI

ASBESTOS ANALYTICAL REPORT
By: Transmission Electron Microscopy

Prepared for

Eurofins Eaton Analytical

CLIENT PROJECT: Source Water, 38004147, 380-51024-1

LAB CODE: W230590

TEST METHOD: EPA 100.2

REPORT DATE: 07/12/23

730 SE Maynard Road • Cary, NC 27511 • 919.481.1413

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ASBESTOS IN DRINKING WATER ANALYSIS

By: TRANSMISSION ELECTRON MICROSCOPY

Client: Eurofins Eaton Analytical
941 Corporate Center Drive
Pomona, CA 91768

Lab Code: W230590
Time Collected: 11:00 AM **Date Collected:** 06-13-23
Time Received: 9:30 AM **Date Received:** 06-15-23
Time Filtered: 10:45 AM **Date Filtered:** 06-15-23
Time Analyzed: 11:08 AM **Date Analyzed:** 07-12-23
Avg Grid Opening Size: .01 mm^2 **Date Reported:** 07-12-23

Project: Source Water, 38004147, 380-51024-1

TEM DRINKING WATER (EPA 100.2)

Client ID Lab ID	Sample Volume Filtered	Dilution Factor	Effective Filter Area (mm^2)	# Of Grid Openings Analyzed	Total Area of Filter Examined	Analytical Sensitivity (MFL)	Asbestos Type	>10 µm	Concentration (MFL)	Confidence Limit Lower	Confidence Limit Upper
RMBH-2 (380-51024-1) W4266	100	1	1060	6	0.06	0.177	None Detected	0	**<.18**	0.0	<0.65

Page 1 of 2

LEGEND:
MFL = million fibers per liter , > 10 um in length
NSD = no asbestos structures detected
ml = milliliter
CHRY = chrysotile
um = micrometer
CROC = crocidolite
mm = millimeter

METHOD: EPA 100.2

ANALYTICAL SENSITIVITY: 0.2 MFL

MAXIMUM CONTAMINANT LEVEL: 7 MFL

This report relates only to the samples tested or analyzed and may not be reproduced, except in full, without written approval by Eurofins CEI. Eurofins CEI makes no warranty representation regarding the accuracy of customer submitted information in preparing and presenting analytical results. Interpretation of the analytical results is the sole responsibility of the customer. Samples were received in acceptable condition unless otherwise noted.

Information provided by customer includes customer sample ID, location, volume and area as well as date and time of sampling.

Sample bottle was not provided by Eurofins CEI.
For the current states of certification please refer to the website: www.EurofinsUS.com/CEI

ANALYST: Partima Poudel
Partima Poudel Acharya

APPROVED BY:
Tianbao Bai, Ph.D., CIH
Laboratory Director

ng Water Testing Pomona
nter Drive
91768-2642
25) 386-1100

ustody Record

eurofins
Environment Testing

Client Information	Sampler: Jeremy Allenbaugh	Lab PM: Berry, Vanessa	Carrier Tracking No(s):	COC No: 380-27643-7204.1
Client Contact: Tam Pham	Phone: (303) 957 7411	E-Mail: Vanessa.Berry@et.eurofinsus.com	State of Origin: Colorado	Page: Page 1 of 3
Company: BlueTriton Brands	PWSID:			Job #:

Address: 12974 US-24,
City: Buena Vista
State, Zip: CO, 18211
Phone: 602-734-2846(Tel)
Email: Tam.Pham@bluetriton.com
Project Name: Source water
Site: 2023 Source

Due Date Requested:
TAT Requested (days):
Compliance Project: Δ Yes Δ No
PO #: 4520128226
WO #:
Project #: 38004147
SSOW#:

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Y - Trizma
	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	300.1_PREC - Bromide	1513B_IDA - TCDD	SM7500_Rn_B - Radon	549.2_PREC - 549.2 Diquat and Paraquat	548.1_PREC - 548.1 Endothall	522_MOD_PREC - Dioxane	504.1_LL_PREC, 505_PREC	547_PREC - 547 Glyphosate	GIT_RA226_RA228 - GIT - RA226 & 228	5310C - TOC	2320B, 2510B, SM4500_H+	200.7_SDWA, 200.8_Hg, 200.8_LL, 200.8_SDWA	537.1_DW_PREC - 537.1 Full List	Total Number of containers	Special Instructions/Note:
				Preservation Code:			L	R	N	R	R		R	R	D	S	N	D	Y		
RMBH-2	6/13	1100		Drinking Wate			x	x	x	x	x	x	x	x	x	x	x	x	x		
Field Blank				Drinking Wate															x		Field Blank - hold for detections
Trip Blank				Drinking Wate																	

380-51024 COC

Possible Hazard Identification
☐ *Non-Hazard* ☐ *Flammable* ☐ *Skin Irritant* ☐ *Poison B* ☐ *Unknown* ☐ *Radiological*

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For ________ Months*

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements: 1 UPS#1Z57RE971531499117

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment: 2 #1Z57RE9715369577103
Relinquished by:	Date/Time: 6-13-23 12:00	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 6/14/23 0743	Company: EEC

Custody Seals Intact: Δ Yes Δ No
Custody Seal No.:
Cooler Temperature(s) °C and Other Remarks: (730) 5.6-0.1= 5.5 CEL ICE
(7509

Eurofins Eaton Analytical Pomona
941 Corporate Center Drive
Pomona, CA 91768-2642
Phone: 626-386-1100

Chain of Custody Record

eurofins Environment Testing

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Berry, Vanessa	Carrier Tracking No(s):	COC No: 380-58020.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Vanessa.Berry@et.eurofinsus.com	State of Origin: Colorado	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): ISO/IEC 17025 - A2LA; NELAP - New Jersey; NELAP - New Y ...		Job #: 380-51024-1
Address: 13715 Rider Trail North, ,	**Due Date Requested:** 7/12/2023			
City: Earth City	**TAT Requested (days):**			
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	**PO #**			
Email:	**WO #**			
Project Name: Source water	Project #: 38004147			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

- A - HCL
- B - NaOH
- C - Zn Acetate
- D - Nitric Acid
- E - NaHSO4
- F - MeOH
- G - Amchlor
- H - Ascorbic Acid
- I - Ice
- J - DI Water
- K - EDTA
- L - EDA
- M - Hexane
- N - None
- O - AsNaO2
- P - Na2O4S
- Q - Na2SO3
- R - Na2S2O3
- S - H2SO4
- T - TSP Dodecahydrate
- U - Acetone
- V - MCAA
- W - pH 4-5
- Y - Trizma
- Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	900.0/Evaporation Gross Alpha & Beta	903.0/PrecSep_21 Radium-226	904.0/PrecSep_0 Radium-228	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
RMBH-2 (380-51024-1)	6/13/23	11:00 Mountain		Drinking Wate			X	X	X	6	SDWA Extend count time if needed to meet MDC-

Note: Since laboratory accreditations are subject to change, Eurofins Eaton Analytical, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Eaton Analytical, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Eaton Analytical, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Eaton Analytical, LLC.

Possible Hazard Identification
Unconfirmed

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* ________ *Months*

Deliverable Requested: I, II, III, IV, Other (specify)
Primary Deliverable Rank: 1
Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by: MAV	Date/Time: 6-14-23 13:36	Company: EEA-POM	Received by: fedex	Date/Time:	Company:
Relinquished by: fedex	Date/Time:	Company:	Received by: Briana Sharkey-Gonzalez	Date/Time: 6/15/23 0915	Company: ETATC
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:

Custody Seals Intact: Δ Yes Δ No
Custody Seal No.:
Cooler Temperature(s) °C and Other Remarks:

Eurofins Eaton Analytical Pomona
941 Corporate Center Drive
Pomona, CA 91768-2642
Phone: 626-386-1100

Chain of Custody Record

eurofins
Environment Testing

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Berry, Vanessa	Carrier Tracking No(s):	COC No: 380-58012.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Vanessa.Berry@et.eurofinsus.com	State of Origin: Colorado	Page: Page 1 of 1
Company: Eurofins Eaton Analytical		Accreditations Required (See note): ISO/IEC 17025 - A2LA; NELAP - New Jersey; NELAP - New Y ...		Job #: 380-51024-1

Address:
110 S Hill Street, ,
City:
South Bend
State, Zip:
IN, 46617
Phone:
574-233-4777(Tel) 574-233-8207(Fax)
Email:
Project Name:
Source water
Site:

Due Date Requested:
7/12/2023
TAT Requested (days):
PO #:
WO #:
Project #:
38004147
SSOW#:

Analysis Requested

Preservation Codes:

A - HCL
B - NaOH
C - Zn Acetate
D - Nitric Acid
E - NaHSO4
F - MeOH
G - Amchlor
H - Ascorbic Acid
I - Ice
J - DI Water
K - EDTA
L - EDA

M - Hexane
N - None
O - AsNaO2
P - Na2O4S
Q - Na2SO3
R - Na2S2O3
S - H2SO4
T - TSP Dodecahydrate
U - Acetone
V - MCAA
W - pH 4-5
Y - Trizma
Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	200.7_SDWA/ (MOD) 200.7 Metals	505_PREC/505_Prep (MOD) 505 Pesticides/PCBs	525.2_PREC/525.2_Prep (MOD) 525 Full List	SM7500_Rn_B/Rad_Prep Radon	Total Number of containers	Special Instructions/Note:
			Preservation Code:									
RMBH-2 (380-51024-1)	6/13/23	11:00 Mountain		Drinking Wate			X	X	X	X	8	

Initial Temp: 1.0
Corrected Temp: 1.8
IR Gun # 28wet

Note: Since laboratory accreditations are subject to change, Eurofins Eaton Analytical, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Eaton Analytical, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Eaton Analytical, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Eaton Analytical, LLC.

Possible Hazard Identification
Unconfirmed
Deliverable Requested: I, II, III, IV, Other (specify)
Primary Deliverable Rank: 1

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* ____ *Months*
Special Instructions/QC Requirements:

Empty Kit Relinquished by:
Date:
Time:
Method of Shipment:

Relinquished by:	Date/Time: 6/14/23 1229	Company:	Received by: Penny Pehling Wright	Date/Time: 06/15/23 0900	Company: EEA
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:

Client Provided Sample Container

Custody Seals Intact:
∆ Yes ∆ No
Custody Seal No.:
Cooler Temperature(s) °C and Other Remarks:

Case Narrative

Client: BlueTriton Brands
Project/Site: RMBH-3

Job ID: 380-51027-1
SDG: WZ46-CORU03-017403

Job ID: 380-51027-1

Laboratory: Eurofins Eaton Analytical Pomona

Narrative

Job Narrative
380-51027-1

Revision
The report being provided is a revision of the original report. The report (revision 1) is being revised due to: The lowest calibration level of the instrument was 5 µg/L. The reporting limit of 2 µg/L was outside of the calibration range. As a result, the reporting limit for the following sample(s) was raised from 2 µg/L to 5 µg/L and the associated data were reprocessed with the new reporting limit.

Partial Analytical suite: This report does not include the analysis listed below that were unable to be run within hold time. Resamples will be submitted and a new report will be sent out that includes this data.

525_Prometon, 525_full list and Odor were unable to be run within hold time and were cancelled. Analysis will be recollected.

Receipt
The samples were received on 6/14/2023 7:20 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 6.6º C and 11.5º C.

Receipt Exceptions
The Chain-of-Custody (COC) was incomplete as received and/or improperly completed. There are no sample dates or sample times on the COC; logged in per the received containers' labels.

GC/MS VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC/MS Semi VOA
Method 525.2: The laboratory control sample (LCS) for preparation batch 810-63086 and analytical batch 810-63143 recovered outside control limits (28-85%) for the following analytes: Dimethoate (96%). These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

Method 525.2: The low level laboratory control sample (LLCS) for preparation batch 810-63086 and analytical batch 810-63143 recovered outside control limits (50-150%) for the following analytes: Endrin (151%). These analytes were biased high in the LLCS and were not detected in the associated samples; therefore, the data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

HPLC/IC
Method 300.1: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for analytical batch 380-44771 were outside control limits for Bromide. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory sample control duplicate (LCS/LCSD) recoveries and precision was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC Semi VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

RAD
Methods 904.0, 9320: Radium-228 batch 616550
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.
RMBH-3 (380-51027-1), (LCS 160-616550/2-A), (MB 160-616550/1-A), (380-51145-R-1-B) and (380-51145-Q-1-B DU)

Method 900.0: Gross Alpha Beta prep batch 160-618374:
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time

Job ID: 380-51027-1 (Continued)

Laboratory: Eurofins Eaton Analytical Pomona (Continued)

applied as the Activity Reference Date. RMBH-3 (380-51027-1), (LCS 160-618374/2-A), (LCSB 160-618374/3-A), (MB 160-618374/1-A), (752-8464-D-1-B), (752-8464-D-1-E DU), (752-8464-D-1-C MS) and (752-8464-D-1-D MSBT)

Methods 903.0, 9315: Radium-226 prep batch 160-616544:
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. RMBH-3 (380-51027-1), (LCS 160-616544/2-A), (MB 160-616544/1-A), (380-51145-R-1-A) and (380-51145-Q-1-A DU)

Method SM7500_Rn_B: Due to the short half life of the Rn-222 analyte (3.8 days), the analyte concentration decreases rapidly with time. This decay leads to increased relative uncertainty in the measurement and decreased sensitivity (increased minimum detectable concentration [MDC]) proportional to the decay factor. Although the sample was counted more than 4 days from the collection date, the result is still valid, but the client should be aware of the increased uncertainty and MDC associated with the result. The following samples are affected: 380-51027-1

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

LCMS
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry
Method 4500 CN F: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for analytical batch 380-44580 were outside control limits for one or more analytes. See QC Sample Results for detail. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.

Method 420.4: The instrument blank for analytical batch 380-45422 contained phenolic compounds greater than the method detection limit (MDL), and were not reanalyzed because sample results are ND and not negatively affected. The data have been qualified and reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Subcontract non-Sister
See attached subcontract report.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Subcontract Work
Method 100.2 Asbestos in DW: This method was subcontracted to E CEI. The subcontract laboratory certification is different from that of the facility issuing the final report.

Client Sample Results

Client Sample ID: RMBH-3

Date Collected: 06/13/23 10:00
Date Received: 06/14/23 07:20

Lab Sample ID: 380-51027-1

Matrix: Drinking Water

Method: 524.2 - Total Trihalomethanes

Analyte	Result	Qualifier	RL		Unit	D	Analyzed	Dil Fac	Analyst
Trihalomethanes, Total	ND		0.0010		mg/L		06/20/23 09:12	1	N1R

Method: 524.2 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Analyzed	Dil Fac	Analyst
Dichlorodifluoromethane	ND		0.00050		mg/L		06/19/23 07:51	1	P3EE
Chloromethane (methyl chloride)	ND		0.00050		mg/L		06/19/23 07:51	1	P3EE
Vinyl Chloride (VC)	ND		0.00050		mg/L		06/19/23 07:51	1	P3EE
Bromomethane (Methyl Bromide)	ND		0.00050		mg/L		06/19/23 07:51	1	P3EE
Chloroethane	ND		0.00050		mg/L		06/19/23 07:51	1	P3EE
Trichlorofluoromethane (Freon 11)	ND		0.0050		mg/L		06/19/23 07:51	1	P3EE
1,1-Dichlorethylene	ND		0.00050		mg/L		06/19/23 07:51	1	P3EE
Trichlorotrifluoroethane	ND		0.010		mg/L		06/19/23 07:51	1	P3EE
Carbon disulfide	ND		0.00050		mg/L		06/19/23 07:51	1	P3EE
Dichloromethane	ND		0.00050		mg/L		06/19/23 07:51	1	P3EE
trans-1,2-Dichloroethylene	ND		0.00050		mg/L		06/19/23 07:51	1	P3EE
Methyl-tert-butyl Ether (MTBE)	ND		0.0030		mg/L		06/19/23 07:51	1	P3EE
1,1-Dichloroethane	ND		0.00050		mg/L		06/19/23 07:51	1	P3EE
2-Butanone (MEK)	ND		0.0050		mg/L		06/19/23 07:51	1	P3EE
Diisopropyl ether	ND		0.0030		mg/L		06/19/23 07:51	1	P3EE
2,2-Dichloropropane	ND		0.00050		mg/L		06/19/23 07:51	1	P3EE
cis-1,2-Dichloroethylene	ND		0.00050		mg/L		06/19/23 07:51	1	P3EE
Bromochloromethane	ND		0.00050		mg/L		06/19/23 07:51	1	P3EE
Tert-butyl ethyl ether	ND		0.0030		mg/L		06/19/23 07:51	1	P3EE
1,1,1-Trichloroethane	ND		0.00050		mg/L		06/19/23 07:51	1	P3EE
4-Methyl-2-pentanone (MIBK)	ND		0.0050		mg/L		06/19/23 07:51	1	P3EE
1,2-Dichloroethane	ND		0.00050		mg/L		06/19/23 07:51	1	P3EE
1,1-Dichloropropene	ND		0.00050		mg/L		06/19/23 07:51	1	P3EE
Benzene	ND		0.00050		mg/L		06/19/23 07:51	1	P3EE
Carbon tetrachloride	ND		0.00050		mg/L		06/19/23 07:51	1	P3EE
Bromodichloromethane	ND		0.0010		mg/L		06/19/23 07:51	1	P3EE
Tert-amyl methyl ether	ND		0.0030		mg/L		06/19/23 07:51	1	P3EE
Trichloroethylene (TCE)	ND		0.00050		mg/L		06/19/23 07:51	1	P3EE
1,2-Dichloropropane	ND		0.00050		mg/L		06/19/23 07:51	1	P3EE
Bromoform	ND		0.0010		mg/L		06/19/23 07:51	1	P3EE
Dibromomethane	ND		0.00050		mg/L		06/19/23 07:51	1	P3EE
cis-1,3-Dichloropropene	ND		0.00050		mg/L		06/19/23 07:51	1	P3EE
trans-1,3-Dichloropropene	ND		0.00050		mg/L		06/19/23 07:51	1	P3EE
Toluene	ND		0.00050		mg/L		06/19/23 07:51	1	P3EE
1,1,2-Trichloroethane	ND		0.00050		mg/L		06/19/23 07:51	1	P3EE
Dibromochloromethane	ND		0.0010		mg/L		06/19/23 07:51	1	P3EE
1,3-Dichloropropane	ND		0.00050		mg/L		06/19/23 07:51	1	P3EE
Chloroform (Trichloromethane)	ND		0.0010		mg/L		06/19/23 07:51	1	P3EE
Tetrachloroethene (PCE)	ND		0.00050		mg/L		06/19/23 07:51	1	P3EE
Chlorobenzene	ND		0.00050		mg/L		06/19/23 07:51	1	P3EE
1,1,1,2-Tetrachloroethane	ND		0.00050		mg/L		06/19/23 07:51	1	P3EE
Ethylbenzene	ND		0.00050		mg/L		06/19/23 07:51	1	P3EE
m,p-Xylenes	ND		0.00050		mg/L		06/19/23 07:51	1	P3EE
Styrene	ND		0.00050		mg/L		06/19/23 07:51	1	P3EE
o-Xylene	ND		0.00050		mg/L		06/19/23 07:51	1	P3EE
1,1,2,2-Tetrachloroethane	ND		0.00050		mg/L		06/19/23 07:51	1	P3EE

Client Sample Results

Client Sample ID: RMBH-3

Date Collected: 06/13/23 10:00
Date Received: 06/14/23 07:20

Lab Sample ID: 380-51027-1

Matrix: Drinking Water

Method: 524.2 - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL		Unit	D	Analyzed	Dil Fac	Analyst
1,2,3-Trichloropropane	ND		0.00050		mg/L		06/19/23 07:51	1	P3EE
Isopropylbenzene	ND		0.00050		mg/L		06/19/23 07:51	1	P3EE
Bromobenzene	ND		0.00050		mg/L		06/19/23 07:51	1	P3EE
N-Propylbenzene	ND		0.00050		mg/L		06/19/23 07:51	1	P3EE
p-Chlorotoluene	ND		0.00050		mg/L		06/19/23 07:51	1	P3EE
Naphthalene	ND		0.00050		mg/L		06/19/23 07:51	1	P3EE
o-Chlorotoluene	ND		0.00050		mg/L		06/19/23 07:51	1	P3EE
1,3,5-Trimethylbenzene	ND		0.00050		mg/L		06/19/23 07:51	1	P3EE
tert-Butylbenzene	ND		0.00050		mg/L		06/19/23 07:51	1	P3EE
1,2,4-Trimethylbenzene	ND		0.00050		mg/L		06/19/23 07:51	1	P3EE
sec-Butylbenzene	ND		0.00050		mg/L		06/19/23 07:51	1	P3EE
m-Dichlorobenzene (1,3-DCB)	ND		0.00050		mg/L		06/19/23 07:51	1	P3EE
p-Dichlorobenzene (1,4-DCB)	ND		0.00050		mg/L		06/19/23 07:51	1	P3EE
p-Isopropyltoluene	ND		0.00050		mg/L		06/19/23 07:51	1	P3EE
o-Dichlorobenzene (1,2-DCB)	ND		0.00050		mg/L		06/19/23 07:51	1	P3EE
n-Butylbenzene	ND		0.00050		mg/L		06/19/23 07:51	1	P3EE
1,2,4-Trichlorobenzene	ND		0.00050		mg/L		06/19/23 07:51	1	P3EE
Hexachlorobutadiene	ND		0.00050		mg/L		06/19/23 07:51	1	P3EE
1,2,3-Trichlorobenzene	ND		0.00050		mg/L		06/19/23 07:51	1	P3EE
Xylenes, Total	ND		0.00050		mg/L		06/19/23 07:51	1	P3EE

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Analyzed*	*Dil Fac*	*Analyst*
1,2-Dichloroethane-d4 (Surr)	*109*		*70 - 130*	*06/19/23 07:51*	*1*	*P3EE*
4-Bromofluorobenzene (Surr)	*102*		*70 - 130*	*06/19/23 07:51*	*1*	*P3EE*
Toluene-d8 (Surr)	*89*		*70 - 130*	*06/19/23 07:51*	*1*	*P3EE*

Method: 522 - 1,4 Dioxane (GC/MS SIM)

Analyte	Result	Qualifier	RL		Unit	D	Analyzed	Dil Fac	Analyst
1,4-Dioxane	ND		0.000069		mg/L		06/30/23 16:04	1	X8AA

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Analyzed*	*Dil Fac*	*Analyst*
1,4-Dioxane-d8 (Surr)	*87*		*70 - 130*	*06/30/23 16:04*	*1*	*X8AA*

Method: 525.2 - Semivolatile Organic Compounds (GC/MS) - RA

Analyte	Result	Qualifier	RL		Unit	D	Analyzed	Dil Fac	Analyst
2,4-Dinitrotoluene	ND		0.0048		mg/L		06/21/23 13:56	1	BC
4,4'-DDD	ND		0.000096		mg/L		06/21/23 13:56	1	BC
4,4'-DDE	ND		0.000096		mg/L		06/21/23 13:56	1	BC
4,4'-DDT	ND		0.000096		mg/L		06/21/23 13:56	1	BC
Acenaphthene	ND		0.0048		mg/L		06/21/23 13:56	1	BC
Acenaphthylene	ND		0.0048		mg/L		06/21/23 13:56	1	BC
Alachlor	ND		0.00096		mg/L		06/21/23 13:56	1	BC
Aldrin	ND		0.000096		mg/L		06/21/23 13:56	1	BC
alpha-Chlordane	ND		0.000096		mg/L		06/21/23 13:56	1	BC
Anthracene	ND		0.0048		mg/L		06/21/23 13:56	1	BC
Atrazine	ND		0.00048		mg/L		06/21/23 13:56	1	BC
Benzo[a]anthracene	ND		0.0096		mg/L		06/21/23 13:56	1	BC
Benzo[a]pyrene	ND		0.000096		mg/L		06/21/23 13:56	1	BC
Benzo[b]fluoranthene	ND		0.0096		mg/L		06/21/23 13:56	1	BC
Benzo[g,h,i]perylene	ND		0.0096		mg/L		06/21/23 13:56	1	BC

Client Sample ID: RMBH-3
Date Collected: 06/13/23 10:00
Date Received: 06/14/23 07:20

Lab Sample ID: 380-51027-1
Matrix: Drinking Water

Method: 525.2 - Semivolatile Organic Compounds (GC/MS) - RA (Continued)

Analyte	Result	Qualifier	RL		Unit	D	Analyzed	Dil Fac	Analyst
Benzo[k]fluoranthene	ND		0.0096		mg/L		06/21/23 13:56	1	BC
Bromacil	ND		0.0096		mg/L		06/21/23 13:56	1	BC
Butachlor	ND		0.00037		mg/L		06/21/23 13:56	1	BC
Butylbenzylphthalate	ND		0.0096		mg/L		06/21/23 13:56	1	BC
Chlorothalonil	ND		0.0048		mg/L		06/21/23 13:56	1	BC
Chrysene	ND		0.0048		mg/L		06/21/23 13:56	1	BC
Di(2-ethylhexyl)adipate	ND		0.0048		mg/L		06/21/23 13:56	1	BC
Di (2-ethylhexyl)phthalate	ND		0.0029		mg/L		06/21/23 13:56	1	BC
Di-n-butyl phthalate	ND		0.0048		mg/L		06/21/23 13:56	1	BC
Di-n-octyl phthalate	ND		0.0048		mg/L		06/21/23 13:56	1	BC
Diazinon	ND		0.000096		mg/L		06/21/23 13:56	1	BC
Dibenz(a,h)anthracene	ND		0.0048		mg/L		06/21/23 13:56	1	BC
Dieldrin	ND		0.000096		mg/L		06/21/23 13:56	1	BC
Diethylphthalate	ND		0.0048		mg/L		06/21/23 13:56	1	BC
Dimethoate	ND	*+	0.00048		mg/L		06/21/23 13:56	1	BC
Dimethylphthalate	ND		0.0048		mg/L		06/21/23 13:56	1	BC
EPTC	ND		0.000096		mg/L		06/21/23 13:56	1	BC
Endrin	ND		0.0000096		mg/L		06/21/23 13:56	1	BC
Fluoranthene	ND		0.0048		mg/L		06/21/23 13:56	1	BC
Fluorene	ND		0.0048		mg/L		06/21/23 13:56	1	BC
gamma-BHC (Lindane)	ND		0.00019		mg/L		06/21/23 13:56	1	BC
gamma-Chlordane	ND		0.000096		mg/L		06/21/23 13:56	1	BC
Heptachlor	ND		0.000038		mg/L		06/21/23 13:56	1	BC
Heptachlor epoxide	ND		0.000019		mg/L		06/21/23 13:56	1	BC
Hexachlorobenzene	ND		0.00048		mg/L		06/21/23 13:56	1	BC
Hexachlorocyclopentadiene	ND		0.00096		mg/L		06/21/23 13:56	1	BC
Isophorone	ND		0.0096		mg/L		06/21/23 13:56	1	BC
Indeno[1,2,3-cd]pyrene	ND		0.0096		mg/L		06/21/23 13:56	1	BC
Malathion	ND		0.000096		mg/L		06/21/23 13:56	1	BC
Methoxychlor	ND		0.0096		mg/L		06/21/23 13:56	1	BC
Metolachlor	ND		0.000096		mg/L		06/21/23 13:56	1	BC
Metribuzin	ND		0.000096		mg/L		06/21/23 13:56	1	BC
Molinate	ND		0.0019		mg/L		06/21/23 13:56	1	BC
Parathion	ND		0.00048		mg/L		06/21/23 13:56	1	BC
Phenanthrene	ND		0.0048		mg/L		06/21/23 13:56	1	BC
Propachlor	ND		0.00048		mg/L		06/21/23 13:56	1	BC
Pyrene	ND		0.00048		mg/L		06/21/23 13:56	1	BC
Simazine	ND		0.000096		mg/L		06/21/23 13:56	1	BC
Terbacil	ND		0.000096		mg/L		06/21/23 13:56	1	BC
Thiobencarb	ND		0.00096		mg/L		06/21/23 13:56	1	BC
trans-Nonachlor	ND		0.000096		mg/L		06/21/23 13:56	1	BC
Trifluralin	ND		0.000096		mg/L		06/21/23 13:56	1	BC
Endrin aldehyde	ND		0.000096		mg/L		06/21/23 13:56	1	BC
2,6-Dinitrotoluene	ND		0.0048		mg/L		06/21/23 13:56	1	BC
Acetochlor	ND		0.000096		mg/L		06/21/23 13:56	1	BC
beta-BHC	ND		0.000096		mg/L		06/21/23 13:56	1	BC
Chloroneb	ND		0.000096		mg/L		06/21/23 13:56	1	BC
Chlorpyrifos	ND		0.000048		mg/L		06/21/23 13:56	1	BC
delta-BHC	ND		0.000096		mg/L		06/21/23 13:56	1	BC

Client Sample ID: RMBH-3
Date Collected: 06/13/23 10:00
Date Received: 06/14/23 07:20

Lab Sample ID: 380-51027-1
Matrix: Drinking Water

Method: 525.2 - Semivolatile Organic Compounds (GC/MS) - RA (Continued)

Analyte	Result	Qualifier	RL		Unit	D	Analyzed	Dil Fac	Analyst
Dichlorvos	ND		0.000048		mg/L		06/21/23 13:56	1	BC
Endosulfan I	ND		0.000096		mg/L		06/21/23 13:56	1	BC
Endosulfan II	ND		0.000096		mg/L		06/21/23 13:56	1	BC
Endosulfan sulfate	ND		0.000096		mg/L		06/21/23 13:56	1	BC
cis-Permethrin	ND		0.000096		mg/L		06/21/23 13:56	1	BC
trans-Permethrin	ND		0.000096		mg/L		06/21/23 13:56	1	BC
Pendimethalin	ND		0.000096		mg/L		06/21/23 13:56	1	BC
Terbuthylazine	ND		0.000096		mg/L		06/21/23 13:56	1	BC
Prometon	ND		0.000096		mg/L		06/21/23 13:56	1	BC
Hexazinone	ND		0.000096		mg/L		06/21/23 13:56	1	BC
Permethrin	ND		0.000096		mg/L		06/21/23 13:56	1	BC
Chlordane (n.o.s.)	ND		0.000048		mg/L		06/21/23 13:56	1	BC

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Analyzed*	*Dil Fac*	*Analyst*
2-Nitro-m-xylene (Surr)	*96*		*70 - 130*	*06/21/23 13:56*	*1*	*BC*
Perylene-d12 (Surr)	*88*		*70 - 130*	*06/21/23 13:56*	*1*	*BC*
Triphenylphosphate (Surr)	*111*		*70 - 130*	*06/21/23 13:56*	*1*	*BC*

Method: 548.1 - Endothall (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Analyzed	Dil Fac	Analyst
Endothall	ND		0.045		mg/L		06/26/23 10:18	1	X8AA

Method: 504.1 - EDB, DBCP and 1,2,3-TCP (GC)

Analyte	Result	Qualifier	RL		Unit	D	Analyzed	Dil Fac	Analyst
1,2,3-Trichloropropane	ND		0.000020		mg/L		06/16/23 10:35	1	K9GY
1,2-Dibromo-3-Chloropropane	ND		0.000010		mg/L		06/16/23 10:35	1	K9GY
1,2-Dibromoethane	ND		0.000020		mg/L		06/16/23 10:35	1	K9GY

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Analyzed*	*Dil Fac*	*Analyst*
1,2-Dibromopropane (Surr)	*103*		*60 - 140*	*06/16/23 10:35*	*1*	*K9GY*

Method: 505 - Organochlorine Pesticides/PCBs (GC)

Analyte	Result	Qualifier	RL		Unit	D	Analyzed	Dil Fac	Analyst
PCB-1016	ND		0.00050		mg/L		06/20/23 17:36	1	JV
PCB-1221	ND		0.00050		mg/L		06/20/23 17:36	1	JV
PCB-1232	ND		0.00050		mg/L		06/20/23 17:36	1	JV
PCB-1242	ND		0.00050		mg/L		06/20/23 17:36	1	JV
PCB-1248	ND		0.00050		mg/L		06/20/23 17:36	1	JV
PCB-1254	ND		0.00050		mg/L		06/20/23 17:36	1	JV
PCB-1260	ND		0.00050		mg/L		06/20/23 17:36	1	JV
Chlordane (technical)	ND		0.00010		mg/L		06/20/23 17:36	1	JV
Toxaphene	ND		0.0010		mg/L		06/20/23 17:36	1	JV
Polychlorinated biphenyls, Total	ND		0.00050		mg/L		06/20/23 17:36	1	JV

Method: 515.4 - Herbicides (GC)

Analyte	Result	Qualifier	RL		Unit	D	Analyzed	Dil Fac	Analyst
2,4,5-TP (Silvex)	ND		0.0010		mg/L		07/02/23 01:57	1	DR5R
2,4,5-T	ND		0.00020		mg/L		07/02/23 01:57	1	DR5R
Dinoseb	ND		0.0020		mg/L		07/02/23 01:57	1	DR5R
2,4-D	ND		0.010		mg/L		07/02/23 01:57	1	DR5R
2,4-DB	ND		0.0020		mg/L		07/02/23 01:57	1	DR5R

Client Sample ID: RMBH-3

Date Collected: 06/13/23 10:00
Date Received: 06/14/23 07:20

Lab Sample ID: 380-51027-1
Matrix: Drinking Water

Method: 515.4 - Herbicides (GC) (Continued)

Analyte	Result	Qualifier	RL		Unit	D	Analyzed	Dil Fac	Analyst
Bentazon	ND		0.0020		mg/L		07/02/23 01:57	1	DR5R
Pentachlorophenol	ND		0.00020		mg/L		07/02/23 01:57	1	DR5R
Dalapon	ND		0.010		mg/L		07/02/23 01:57	1	DR5R
3,5-Dichlorobenzoic acid	ND		0.00050		mg/L		07/02/23 01:57	1	DR5R
Picloram	ND		0.0010		mg/L		07/02/23 01:57	1	DR5R
Acifluorfen	ND		0.00020		mg/L		07/02/23 01:57	1	DR5R
Dicamba	ND		0.0015		mg/L		07/02/23 01:57	1	DR5R
Dichlorprop	ND		0.00050		mg/L		07/02/23 01:57	1	DR5R
DCPA Mon/Di-Acid Degradates	ND		0.00010		mg/L		07/02/23 01:57	1	DR5R

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Analyzed*	*Dil Fac*	*Analyst*
2,4-Dichlorophenylacetic acid (Surr)	*96*		*70 - 130*	*07/02/23 01:57*	*1*	*DR5R*
2,4-Dichlorophenylacetic acid (Surr)	*99*		*70 - 130*	*07/02/23 01:57*	*1*	*DR5R*

Method: 218.6 - Chromium, Hexavalent (Ion Chromatography)

Analyte	Result	Qualifier	RL		Unit	D	Analyzed	Dil Fac	Analyst
Hexavalent Chromium (CrVI)	ND		0.010		mg/L		06/14/23 21:43	1	YHP7

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Analyzed	Dil Fac	Analyst
Chloride	**3.8**		1.0		mg/L		06/15/23 03:31	1	VB9B
Nitrate as N	**0.75**		0.40		mg/L		06/15/23 03:31	1	VB9B
Nitrite as N	ND		0.40		mg/L		06/15/23 03:31	1	VB9B
Sulfate	**29**		0.50		mg/L		06/15/23 03:31	1	VB9B

Method: 300.1 - Disinfection By-Products, (IC)

Analyte	Result	Qualifier	RL		Unit	D	Analyzed	Dil Fac	Analyst
Bromide	**0.045**		0.0020		mg/L		06/20/23 00:32	1	VB9B

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Analyzed*	*Dil Fac*	*Analyst*
Potassium Dichloroacetate (Surr)	*103*		*90 - 115*	*06/20/23 00:32*	*1*	*VB9B*

Method: 531.2 - Carbamate Pesticides (HPLC)

Analyte	Result	Qualifier	RL		Unit	D	Analyzed	Dil Fac	Analyst
3-Hydroxycarbofuran	ND		0.0030		mg/L		06/27/23 23:16	1	UXOU
Aldicarb	ND		0.0030		mg/L		06/27/23 23:16	1	UXOU
Aldicarb sulfone	ND		0.0040		mg/L		06/27/23 23:16	1	UXOU
Aldicarb sulfoxide	ND		0.0030		mg/L		06/27/23 23:16	1	UXOU
Baygon	ND		0.00050		mg/L		06/27/23 23:16	1	UXOU
Carbaryl	ND		0.0050		mg/L		06/27/23 23:16	1	UXOU
Carbofuran (Furadan)	ND		0.0050		mg/L		06/27/23 23:16	1	UXOU
Methiocarb	ND		0.00050		mg/L		06/27/23 23:16	1	UXOU
Methomyl	ND		0.0020		mg/L		06/27/23 23:16	1	UXOU
Oxamyl (Vydate)	ND		0.020		mg/L		06/27/23 23:16	1	UXOU

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Analyzed*	*Dil Fac*	*Analyst*
BDMC	*101*		*70 - 130*	*06/27/23 23:16*	*1*	*UXOU*

Method: 547 - Glyphosate (DAI HPLC)

Analyte	Result	Qualifier	RL		Unit	D	Analyzed	Dil Fac	Analyst
Glyphosate	ND		0.025		mg/L		06/20/23 15:45	1	UD4M

Client Sample ID: RMBH-3
Date Collected: 06/13/23 10:00
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Lab Sample ID: 380-51027-1
Matrix: Drinking Water

Method: 549.2 - Diquat and Paraquat (HPLC)

Analyte	Result	Qualifier	RL	Unit	D	Analyzed	Dil Fac	Analyst
Diquat	ND		0.0041	mg/L		06/19/23 17:59	1	UD4M
Paraquat	ND		0.0020	mg/L		06/19/23 17:59	1	UD4M

Method: 331.0 - Perchlorate (LC/MS/MS)

Analyte	Result	Qualifier	RL	Unit	D	Analyzed	Dil Fac	Analyst
Perchlorate	ND		0.0010	mg/L		06/15/23 12:22	1	UKDT

Method: 533 - Perfluorinated and Polyfluorinated Alkyl Substances in Drinking Water

Analyte	Result	Qualifier	RL	Unit	D	Analyzed	Dil Fac	Analyst
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		0.0000020	mg/L		07/06/23 13:18	1	UKYM
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	ND		0.0000020	mg/L		07/06/23 13:18	1	UKYM
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.0000020	mg/L		07/06/23 13:18	1	UKYM
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	ND		0.0000020	mg/L		07/06/23 13:18	1	UKYM
Perfluorobutanesulfonic acid (PFBS)	ND		0.0000020	mg/L		07/06/23 13:18	1	UKYM
Perfluorodecanoic acid (PFDA)	ND		0.0000020	mg/L		07/06/23 13:18	1	UKYM
Perfluorododecanoic acid (PFDoA)	ND		0.0000020	mg/L		07/06/23 13:18	1	UKYM
Perfluoroheptanoic acid (PFHpA)	ND		0.0000020	mg/L		07/06/23 13:18	1	UKYM
Perfluorohexanesulfonic acid (PFHxS)	ND		0.0000020	mg/L		07/06/23 13:18	1	UKYM
Perfluorohexanoic acid (PFHxA)	ND		0.0000020	mg/L		07/06/23 13:18	1	UKYM
Perfluorononanoic acid (PFNA)	ND		0.0000020	mg/L		07/06/23 13:18	1	UKYM
Perfluorooctanesulfonic acid (PFOS)	ND		0.0000020	mg/L		07/06/23 13:18	1	UKYM
Perfluorooctanoic acid (PFOA)	ND		0.0000020	mg/L		07/06/23 13:18	1	UKYM
Perfluoroundecanoic acid (PFUnA)	ND		0.0000020	mg/L		07/06/23 13:18	1	UKYM
Perfluorobutanoic acid (PFBA)	ND		0.0000020	mg/L		07/06/23 13:18	1	UKYM
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		0.0000020	mg/L		07/06/23 13:18	1	UKYM
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		0.0000020	mg/L		07/06/23 13:18	1	UKYM
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		0.0000020	mg/L		07/06/23 13:18	1	UKYM
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		0.0000020	mg/L		07/06/23 13:18	1	UKYM
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		0.0000020	mg/L		07/06/23 13:18	1	UKYM
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		0.0000020	mg/L		07/06/23 13:18	1	UKYM
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		0.0000020	mg/L		07/06/23 13:18	1	UKYM
Perfluoropentanoic acid (PFPeA)	ND		0.0000020	mg/L		07/06/23 13:18	1	UKYM
Perfluoroheptanesulfonic acid (PFHpS)	ND		0.0000020	mg/L		07/06/23 13:18	1	UKYM
Perfluoropentanesulfonic acid (PFPeS)	ND		0.0000020	mg/L		07/06/23 13:18	1	UKYM

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Analyzed*	*Dil Fac*	*Analyst*
13C3 HFPO-DA	*101*		*50 - 200*	*07/06/23 13:18*	*1*	*UKYM*
13C6 PFDA	*121*		*50 - 200*	*07/06/23 13:18*	*1*	*UKYM*
13C5 PFHxA	*120*		*50 - 200*	*07/06/23 13:18*	*1*	*UKYM*
13C4 PFHpA	*114*		*50 - 200*	*07/06/23 13:18*	*1*	*UKYM*
13C8 PFOA	*120*		*50 - 200*	*07/06/23 13:18*	*1*	*UKYM*

Client Sample ID: RMBH-3

Date Collected: 06/13/23 10:00
Date Received: 06/14/23 07:20

Lab Sample ID: 380-51027-1
Matrix: Drinking Water

Method: 533 - Perfluorinated and Polyfluorinated Alkyl Substances in Drinking Water (Continued)

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Analyzed*	*Dil Fac*	*Analyst*
13C9 PFNA	*124*		*50 - 200*	*07/06/23 13:18*	*1*	*UKYM*
13C7 PFUnA	*123*		*50 - 200*	*07/06/23 13:18*	*1*	*UKYM*
13C2 PFDoA	*125*		*50 - 200*	*07/06/23 13:18*	*1*	*UKYM*
13C4 PFBA	*126*		*50 - 200*	*07/06/23 13:18*	*1*	*UKYM*
13C5 PFPeA	*122*		*50 - 200*	*07/06/23 13:18*	*1*	*UKYM*
13C3 PFBS	*124*		*50 - 200*	*07/06/23 13:18*	*1*	*UKYM*
13C3 PFHxS	*119*		*50 - 200*	*07/06/23 13:18*	*1*	*UKYM*
13C8 PFOS	*121*		*50 - 200*	*07/06/23 13:18*	*1*	*UKYM*
13C2-4:2-FTS	*140*		*50 - 200*	*07/06/23 13:18*	*1*	*UKYM*
13C2-6:2-FTS	*144*		*50 - 200*	*07/06/23 13:18*	*1*	*UKYM*
13C2-8:2-FTS	*135*		*50 - 200*	*07/06/23 13:18*	*1*	*UKYM*

Method: 537.1 - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	RL	Unit	D	Analyzed	Dil Fac	Analyst
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	ND		0.0000020	mg/L		06/17/23 21:25	1	UKDT
Perfluorooctanesulfonic acid (PFOS)	ND		0.0000020	mg/L		06/17/23 21:25	1	UKDT
Perfluoroundecanoic acid (PFUnA)	ND		0.0000020	mg/L		06/17/23 21:25	1	UKDT
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.0000020	mg/L		06/17/23 21:25	1	UKDT
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.0000020	mg/L		06/17/23 21:25	1	UKDT
Perfluorohexanoic acid (PFHxA)	ND		0.0000020	mg/L		06/17/23 21:25	1	UKDT
Perfluorododecanoic acid (PFDoA)	ND		0.0000020	mg/L		06/17/23 21:25	1	UKDT
Perfluorooctanoic acid (PFOA)	ND		0.0000020	mg/L		06/17/23 21:25	1	UKDT
Perfluorodecanoic acid (PFDA)	ND		0.0000020	mg/L		06/17/23 21:25	1	UKDT
Perfluorohexanesulfonic acid (PFHxS)	ND		0.0000020	mg/L		06/17/23 21:25	1	UKDT
Perfluorobutanesulfonic acid (PFBS)	ND		0.0000020	mg/L		06/17/23 21:25	1	UKDT
Perfluoroheptanoic acid (PFHpA)	ND		0.0000020	mg/L		06/17/23 21:25	1	UKDT
Perfluorononanoic acid (PFNA)	ND		0.0000020	mg/L		06/17/23 21:25	1	UKDT
Perfluorotetradecanoic acid (PFTA)	ND		0.0000020	mg/L		06/17/23 21:25	1	UKDT
Perfluorotridecanoic acid (PFTrDA)	ND		0.0000020	mg/L		06/17/23 21:25	1	UKDT
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	ND		0.0000020	mg/L		06/17/23 21:25	1	UKDT
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		0.0000020	mg/L		06/17/23 21:25	1	UKDT
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.0000020	mg/L		06/17/23 21:25	1	UKDT

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Analyzed*	*Dil Fac*	*Analyst*
d5-NEtFOSAA	*114*		*70 - 130*	*06/17/23 21:25*	*1*	*UKDT*
13C2 PFHxA	*100*		*70 - 130*	*06/17/23 21:25*	*1*	*UKDT*
13C2 PFDA	*101*		*70 - 130*	*06/17/23 21:25*	*1*	*UKDT*
13C3-GenX	*92*		*70 - 130*	*06/17/23 21:25*	*1*	*UKDT*

Method: 1613B - Tetra Chlorinated Dioxin (GC/MS/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyzed	Dil Fac	Analyst
2,3,7,8-TCDD	ND		0.0000000049		mg/L		07/14/23 17:51	1	GH6R

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Analyzed*	*Dil Fac*	*Analyst*
13C-2,3,7,8-TCDD	*64*		*31 - 137*	*07/14/23 17:51*	*1*	*GH6R*

1 2 3 4 5 6 7 8

Client Sample ID: RMBH-3

Lab Sample ID: 380-51027-1

Date Collected: 06/13/23 10:00
Date Received: 06/14/23 07:20
Matrix: Drinking Water

Method: 200.7 - Metals (ICP)

Analyte	Result	Qualifier	RL		Unit	D	Analyzed	Dil Fac	Analyst
Iron	ND		0.10		mg/L		06/15/23 21:13	1	T8RV
Potassium	**1.8**		1.0		mg/L		06/15/23 21:13	1	T8RV
Sodium	**6.9**		1.0		mg/L		06/15/23 21:13	1	T8RV
Calcium	**48**		1.0		mg/L		06/15/23 21:13	1	T8RV
Boron	ND		0.10		mg/L		06/15/23 21:13	1	T8RV
Magnesium	**13**		0.50		mg/L		06/15/23 21:13	1	T8RV

Method: 200.8 - Mercury (ICP/MS)

Analyte	Result	Qualifier	RL		Unit	D	Analyzed	Dil Fac	Analyst
Hg	ND		0.00020		mg/L		06/16/23 23:30	1	J9ZD

Method: 200.8 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL		Unit	D	Analyzed	Dil Fac	Analyst
Aluminum	ND		0.050		mg/L		06/29/23 17:42	1	ULAL
Selenium	ND		0.0050		mg/L		06/29/23 17:42	1	ULAL
Antimony	ND		0.0050		mg/L		06/29/23 17:42	1	ULAL
Arsenic	ND		0.0020		mg/L		06/29/23 17:42	1	ULAL
Barium	ND		0.10		mg/L		06/29/23 17:42	1	ULAL
Beryllium	ND		0.0010		mg/L		06/29/23 17:42	1	ULAL
Cadmium	ND		0.0010		mg/L		06/29/23 17:42	1	ULAL
Chromium	ND		0.0050		mg/L		06/29/23 17:42	1	ULAL
Copper	ND		0.050		mg/L		06/29/23 17:42	1	ULAL
Lead	ND		0.0020		mg/L		06/29/23 17:42	1	ULAL
Manganese	ND		0.020		mg/L		06/29/23 17:42	1	ULAL
Molybdenum	ND		0.0020		mg/L		06/29/23 17:42	1	ULAL
Nickel	ND		0.010		mg/L		06/29/23 17:42	1	ULAL
Silver	ND		0.010		mg/L		06/29/23 17:42	1	ULAL
Thallium	ND		0.0010		mg/L		06/29/23 17:42	1	ULAL
Uranium	**0.0048**		0.0010		mg/L		06/29/23 17:42	1	ULAL
Zinc	ND		0.050		mg/L		06/29/23 17:42	1	ULAL

Analyte	Result	Qualifier	RL		Unit	D	Analyzed	Dil Fac	Analyst
Uranium	**3.2**		0.67		pCi/L		06/29/23 17:42	1	ULAL

Method: SM 2340B - Total Hardness (as CaCO3) by calculation

Analyte	Result	Qualifier	RL		Unit	D	Analyzed	Dil Fac	Analyst
Hardness as calcium carbonate	**170**		5.0		mg/L		06/28/23 14:42	1	T8RV
Calcium hardness as CaCO3	**120**		3.0		mg/L		06/28/23 14:42	1	T8RV

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Analyzed	Dil Fac	Analyst
Turbidity	**0.10**		0.10		NTU		06/14/23 09:45	1	GP4S
Langelier Index at 25C	**0.54**				LangSU		06/21/23 14:29	1	UWAH
Phenols, Total	ND	^2	0.0010		mg/L		06/23/23 16:07	1	MIA8
Cyanide	ND		0.10		mg/L		06/19/23 09:43	1	GP4S
Color, Apparent	ND		3.0		Color Units		06/14/23 11:19	1	UFU5
Alkalinity as CaCO3	**160**		2.0		mg/L		06/17/23 01:53	1	D5MQ
Bicarbonate ion as HCO3	**190**		2.4		mg/L		06/17/23 01:53	1	D5MQ
Carbonate as CO3	ND		1.2		mg/L		06/17/23 01:53	1	D5MQ
Specific Conductance	**370**		2.0		umhos/cm		06/17/23 01:53	1	D5MQ
Total Dissolved Solids	**230**		20		mg/L		06/14/23 19:50	1	XLG4

Client Sample ID: RMBH-3
Date Collected: 06/13/23 10:00
Date Received: 06/14/23 07:20

Lab Sample ID: 380-51027-1
Matrix: Drinking Water

General Chemistry (Continued)

Analyte	Result	Qualifier	RL		Unit	D	Analyzed	Dil Fac	Analyst
Carbon Dioxide, Free	**2.7**		2.0		mg/L		06/19/23 19:55	1	UWAH
Fluoride	**0.49**		0.10		mg/L		06/16/23 17:22	1	D5MQ
pH	**8.1**	**HF**	0.01		SU		06/17/23 01:53	1	D5MQ
Orthophosphate as P	ND		0.10		mg/L		06/15/23 07:51	1	UFU5
N-POC	**0.87**		0.40		mg/L		06/23/23 22:17	2	UWAH
Methylene Blue Active Substances	ND		0.10		mg/L		06/14/23 23:23	1	PK4Q

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDA	Unit	Analyzed	Dil Fac	Analyst
Gross Alpha	**4.38**		2.14	2.19	3.00	1.74	pCi/L	07/11/23 14:51	1	EMH
Gross Beta	**2.31**		0.823	0.855	4.00	0.625	pCi/L	07/11/23 14:51	1	EMH

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDA	Unit	Analyzed	Dil Fac	Analyst
Radium-226	**0.165**		0.0883	0.0896	1.00	0.0648	pCi/L	07/14/23 13:32	1	EMH

Carrier	*%Yield*	*Qualifier*	*Limits*	*Analyzed*	*Dil Fac*	*Analyst*
Ba Carrier	*79.9*		*30 - 110*	*07/14/23 13:32*	*1*	*EMH*

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDA	Unit	Analyzed	Dil Fac	Analyst
Radium-228	**0.392**		0.392	0.393	1.00	0.383	pCi/L	07/06/23 14:05	1	SCB

Carrier	*%Yield*	*Qualifier*	*Limits*	*Analyzed*	*Dil Fac*	*Analyst*
Ba Carrier	*79.9*		*30 - 110*	*07/06/23 14:05*	*1*	*SCB*
Y Carrier	*86.4*		*30 - 110*	*07/06/23 14:05*	*1*	*SCB*

Method: SM7500_Rn_B - Radon

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDA	Unit	Analyzed	Dil Fac	Analyst
Radon 222	**817**	**H**	35.5		100	15.7	pCi/L	06/18/23 03:26	1	SS

eurofins | Environment Testing

Eurofins Eaton Analytical Pomona
941 Corporate Center Drive
Pomona, CA 91768-2642

Laboratory Data
Job #: 380-51027-1

Client: BlueTriton Brands
5772 Jurupa St
Ontario, CA 91761
Attention: Tam Pham

Report Date: 10/09/2023

Parameter	Method	Reporting Limit	Result	Unit
Sample ID: RMBH-3			**Sample #: 380-51027-1**	
Primary Inorganics				
Antimony	200.8	0.0050	ND	mg/L
Arsenic	200.8	0.0020	ND	mg/L
Barium	200.8	0.10	ND	mg/L
Beryllium	200.8	0.0010	ND	mg/L
Cadmium	200.8	0.0010	ND	mg/L
Chromium	200.8	0.0050	ND	mg/L
Cyanide	4500 CN F	0.10	ND	mg/L
Fluoride	SM 4500 F C	0.10	0.49	mg/L
Lead	200.8	0.0020	ND	mg/L
Hg	200.8	0.00020	ND	mg/L
Nickel	200.8	0.010	ND	mg/L
Nitrate as N	300.0	0.40	0.75	mg/L
Nitrite as N	300.0	0.40	ND	mg/L
Selenium	200.8	0.0050	ND	mg/L
Thallium	200.8	0.0010	ND	mg/L
Secondary Inorganics				
Alkalinity as CaCO3	SM 2320B	2.0	160	mg/L
Aluminum	200.8	0.050	ND	mg/L
Boron	200.7	0.10	ND	mg/L
Bromide	300.1	0.0020	0.045	mg/L
Calcium	200.7	1.0	48	mg/L
Carbon Dioxide, Free	SM 4500 CO2 D	2.0	2.7	mg/L
Chloride	300.0	1.0	3.8	mg/L
Copper	200.8	0.050	ND	mg/L
Methylene Blue Active Substances	SM 5540C	0.10	ND	mg/L
Calcium hardness as CaCO3	SM 2340B	3.0	120	mg/L
Hardness as calcium carbonate	SM 2340B	5.0	170	mg/L
Iron	200.7	0.10	ND	mg/L
Magnesium	200.7	0.50	13	mg/L
Manganese	200.8	0.020	ND	mg/L
pH	SM 4500 H+ B	0.01	8.1	SU
Potassium	200.7	1.0	1.8	mg/L
Silver	200.8	0.010	ND	mg/L
Sodium	200.7	1.0	6.9	mg/L
Specific Conductance	SM 2510B	2.0	370	umhos/cn
Sulfate	300.0	0.50	29	mg/L
Total Dissolved Solids	SM 2540C	20	230	mg/L

ND - Not detected at the specified limit.

Eurofins Eaton Analytical Pomona
941 Corporate Center Drive
Pomona, CA 91768-2642

Client: BlueTriton Brands
5772 Jurupa St
Ontario, CA 91761
Attention: Tam Pham

Report Date: 10/09/2023

Parameter	Method	Reporting Limit	Result	Unit
Uranium	200.8	0.0010	0.0048	mg/L
Zinc	200.8	0.050	ND	mg/L
Physical				
Turbidity	180.1	0.10	0.10	NTU
Volatile Organic Compounds				
Benzene	524.2	0.00050	ND	mg/L
Bromobenzene	524.2	0.00050	ND	mg/L
Bromochloromethane	524.2	0.00050	ND	mg/L
Bromodichloromethane	524.2	0.0010	ND	mg/L
Bromoform	524.2	0.0010	ND	mg/L
Bromomethane (Methyl Bromide)	524.2	0.00050	ND	mg/L
n-Butylbenzene	524.2	0.00050	ND	mg/L
sec-Butylbenzene	524.2	0.00050	ND	mg/L
tert-Butylbenzene	524.2	0.00050	ND	mg/L
Carbon tetrachloride	524.2	0.00050	ND	mg/L
Chlorobenzene	524.2	0.00050	ND	mg/L
Chloroethane	524.2	0.00050	ND	mg/L
Chloroform (Trichloromethane)	524.2	0.0010	ND	mg/L
Chloromethane (methyl chloride)	524.2	0.00050	ND	mg/L
o-Chlorotoluene	524.2	0.00050	ND	mg/L
p-Chlorotoluene	524.2	0.00050	ND	mg/L
Dibromochloromethane	524.2	0.0010	ND	mg/L
Dibromomethane	524.2	0.00050	ND	mg/L
o-Dichlorobenzene (1,2-DCB)	524.2	0.00050	ND	mg/L
m-Dichlorobenzene (1,3-DCB)	524.2	0.00050	ND	mg/L
p-Dichlorobenzene (1,4-DCB)	524.2	0.00050	ND	mg/L
Dichlorodifluoromethane	524.2	0.00050	ND	mg/L
1,1-Dichloroethane	524.2	0.00050	ND	mg/L
1,2-Dichloroethane	524.2	0.00050	ND	mg/L
1,1-Dichlorethylene	524.2	0.00050	ND	mg/L
cis-1,2-Dichloroethylene	524.2	0.00050	ND	mg/L
trans-1,2-Dichloroethylene	524.2	0.00050	ND	mg/L
1,2-Dichloropropane	524.2	0.00050	ND	mg/L
1,3-Dichloropropane	524.2	0.00050	ND	mg/L
2,2-Dichloropropane	524.2	0.00050	ND	mg/L
1,1-Dichloropropene	524.2	0.00050	ND	mg/L
cis-1,3-Dichloropropene	524.2	0.00050	ND	mg/L
trans-1,3-Dichloropropene	524.2	0.00050	ND	mg/L
Diisopropyl ether	524.2	0.0030	ND	mg/L
Ethylbenzene	524.2	0.00050	ND	mg/L

ND - Not detected at the specified limit.

Client: BlueTriton Brands
5772 Jurupa St
Ontario, CA 91761
Attention: Tam Pham

Report Date: 10/09/2023

Parameter	Method	Reporting Limit	Result	Unit
Hexachlorobutadiene	524.2	0.00050	ND	mg/L
Isopropylbenzene	524.2	0.00050	ND	mg/L
p-Isopropyltoluene	524.2	0.00050	ND	mg/L
4-Methyl-2-pentanone (MIBK)	524.2	0.0050	ND	mg/L
Methyl-tert-butyl Ether (MTBE)	524.2	0.0030	ND	mg/L
2-Butanone (MEK)	524.2	0.0050	ND	mg/L
Dichloromethane	524.2	0.00050	ND	mg/L
Naphthalene	524.2	0.00050	ND	mg/L
N-Propylbenzene	524.2	0.00050	ND	mg/L
Styrene	524.2	0.00050	ND	mg/L
Tert-amyl methyl ether	524.2	0.0030	ND	mg/L
Tert-butyl ethyl ether	524.2	0.0030	ND	mg/L
1,1,1,2-Tetrachloroethane	524.2	0.00050	ND	mg/L
1,1,2,2-Tetrachloroethane	524.2	0.00050	ND	mg/L
Tetrachloroethene (PCE)	524.2	0.00050	ND	mg/L
Toluene	524.2	0.00050	ND	mg/L
1,2,3-Trichlorobenzene	524.2	0.00050	ND	mg/L
1,2,4-Trichlorobenzene	524.2	0.00050	ND	mg/L
1,1,1-Trichloroethane	524.2	0.00050	ND	mg/L
1,1,2-Trichloroethane	524.2	0.00050	ND	mg/L
Trichloroethylene (TCE)	524.2	0.00050	ND	mg/L
Trichlorofluoromethane (Freon 11)	524.2	0.0050	ND	mg/L
Trichlorotrifluoroethane	524.2	0.010	ND	mg/L
1,2,3-Trichloropropane	504.1	0.000020	ND	mg/L
1,2,3-Trichloropropane	524.2	0.00050	ND	mg/L
1,2,4-Trimethylbenzene	524.2	0.00050	ND	mg/L
1,3,5-Trimethylbenzene	524.2	0.00050	ND	mg/L
Vinyl Chloride (VC)	524.2	0.00050	ND	mg/L
Xylenes, Total	524.2	0.00050	ND	mg/L
m,p-Xylenes	524.2	0.00050	ND	mg/L
o-Xylene	524.2	0.00050	ND	mg/L
Trihalomethanes, Total	524.2	0.0010	ND	mg/L
Carbon disulfide	524.2	0.00050	ND	mg/L
EDB and DBCP				
1,2-Dibromo-3-Chloropropane	504.1	0.000010	ND	mg/L
1,2-Dibromoethane	504.1	0.000020	ND	mg/L
Pesticides and PCBs				
Alachlor	525.2	0.00096	ND	mg/L
Aldrin	525.2	0.000096	ND	mg/L
Dieldrin	525.2	0.000096	ND	mg/L

ND - Not detected at the specified limit.

Eurofins Eaton Analytical South Bend
941 Corporate Center Drive
Pomona, CA 91768-2642

Laboratory Data
Job #: 380-51027-1

Client: BlueTriton Brands
5772 Jurupa St
Ontario, CA 91761
Attention: Tam Pham

Report Date: 10/09/2023

Parameter	Method	Reporting Limit	Result	Unit
Endrin	525.2	0.0000096	ND	mg/L
Heptachlor	525.2	0.000038	ND	mg/L
Heptachlor epoxide	525.2	0.000019	ND	mg/L
gamma-BHC (Lindane)	525.2	0.00019	ND	mg/L
Methoxychlor	525.2	0.0096	ND	mg/L
Polychlorinated biphenyls, Total	505	0.00050	ND	mg/L
PCB-1016	505	0.00050	ND	mg/L
PCB-1221	505	0.00050	ND	mg/L
PCB-1232	505	0.00050	ND	mg/L
PCB-1242	505	0.00050	ND	mg/L
PCB-1248	505	0.00050	ND	mg/L
PCB-1254	505	0.00050	ND	mg/L
PCB-1260	505	0.00050	ND	mg/L
Toxaphene	505	0.0010	ND	mg/L
Herbicides				
2,4,5-T	515.4	0.00020	ND	mg/L
2,4,5-TP (Silvex)	515.4	0.0010	ND	mg/L
2,4-D	515.4	0.010	ND	mg/L
2,4-DB	515.4	0.0020	ND	mg/L
Dichlorprop	515.4	0.00050	ND	mg/L
Acifluorfen	515.4	0.00020	ND	mg/L
Bentazon	515.4	0.0020	ND	mg/L
Dalapon	515.4	0.010	ND	mg/L
3,5-Dichlorobenzoic acid	515.4	0.00050	ND	mg/L
DCPA Mon/Di-Acid Degradates	515.4	0.00010	ND	mg/L
Dicamba	515.4	0.0015	ND	mg/L
Dinoseb	515.4	0.0020	ND	mg/L
Pentachlorophenol	515.4	0.00020	ND	mg/L
Picloram	515.4	0.0010	ND	mg/L
Semivolatile Organic Compounds				
Acenaphthene	525.2	0.0048	ND	mg/L
Acenaphthylene	525.2	0.0048	ND	mg/L
Acetochlor	525.2	0.000096	ND	mg/L
alpha-Chlordane	525.2	0.000096	ND	mg/L
Anthracene	525.2	0.0048	ND	mg/L
Atrazine	525.2	0.00048	ND	mg/L
Benzo[a]anthracene	525.2	0.0096	ND	mg/L
Benzo[a]pyrene	525.2	0.000096	ND	mg/L
Benzo[g,h,i]perylene	525.2	0.0096	ND	mg/L
Benzo[b]fluoranthene	525.2	0.0096	ND	mg/L

ND - Not detected at the specified limit.

Client: BlueTriton Brands
5772 Jurupa St
Ontario, CA 91761
Attention: Tam Pham

Report Date: 10/09/2023

Parameter	Method	Reporting Limit	Result	Unit
Benzo[k]fluoranthene	525.2	0.0096	ND	mg/L
beta-BHC	525.2	0.000096	ND	mg/L
Butachlor	525.2	0.00037	ND	mg/L
Butylbenzylphthalate	525.2	0.0096	ND	mg/L
Chloroneb	525.2	0.000096	ND	mg/L
Chlorothalonil	525.2	0.0048	ND	mg/L
Chlorpyrifos	525.2	0.000048	ND	mg/L
Chrysene	525.2	0.0048	ND	mg/L
Bromacil	525.2	0.0096	ND	mg/L
4,4'-DDD	525.2	0.000096	ND	mg/L
4,4'-DDE	525.2	0.000096	ND	mg/L
4,4'-DDT	525.2	0.000096	ND	mg/L
delta-BHC	525.2	0.000096	ND	mg/L
Dibenz(a,h)anthracene	525.2	0.0048	ND	mg/L
Diethylphthalate	525.2	0.0048	ND	mg/L
Diazinon	525.2	0.000096	ND	mg/L
Dichlorvos	525.2	0.000048	ND	mg/L
Dimethoate	525.2	0.00048	ND	mg/L
Di-n-butyl phthalate	525.2	0.0048	ND	mg/L
2,4-Dinitrotoluene	525.2	0.0048	ND	mg/L
Di-n-octyl phthalate	525.2	0.0048	ND	mg/L
2,6-Dinitrotoluene	525.2	0.0048	ND	mg/L
Di(2-ethylhexyl)adipate	525.2	0.0048	ND	mg/L
Dimethylphthalate	525.2	0.0048	ND	mg/L
Endosulfan I	525.2	0.000096	ND	mg/L
Endosulfan II	525.2	0.000096	ND	mg/L
Endosulfan sulfate	525.2	0.000096	ND	mg/L
Endrin aldehyde	525.2	0.000096	ND	mg/L
EPTC	525.2	0.000096	ND	mg/L
Fluoranthene	525.2	0.0048	ND	mg/L
Fluorene	525.2	0.0048	ND	mg/L
gamma-Chlordane	525.2	0.000096	ND	mg/L
Hexachlorobenzene	525.2	0.00048	ND	mg/L
Hexachlorocyclopentadiene	525.2	0.00096	ND	mg/L
Indeno[1,2,3-cd]pyrene	525.2	0.0096	ND	mg/L
Isophorone	525.2	0.0096	ND	mg/L
Malathion	525.2	0.000096	ND	mg/L
Metolachlor	525.2	0.000096	ND	mg/L
Metribuzin	525.2	0.000096	ND	mg/L
Molinate	525.2	0.0019	ND	mg/L
trans-Nonachlor	525.2	0.000096	ND	mg/L

ND - Not detected at the specified limit.

Client: BlueTriton Brands
5772 Jurupa St
Ontario, CA 91761
Attention: Tam Pham

Report Date: 10/09/2023

Parameter	Method	Reporting Limit	Result	Unit
Parathion	525.2	0.00048	ND	mg/L
Pendimethalin	525.2	0.000096	ND	mg/L
Permethrin	525.2	0.000096	ND	mg/L
Phenanthrene	525.2	0.0048	ND	mg/L
Propachlor	525.2	0.00048	ND	mg/L
Pyrene	525.2	0.00048	ND	mg/L
Simazine	525.2	0.000096	ND	mg/L
Terbuthylazine	525.2	0.000096	ND	mg/L
Terbacil	525.2	0.000096	ND	mg/L
Thiobencarb	525.2	0.00096	ND	mg/L
Trifluralin	525.2	0.000096	ND	mg/L
Carbamates				
Aldicarb	531.2	0.0030	ND	mg/L
Aldicarb sulfone	531.2	0.0040	ND	mg/L
Aldicarb sulfoxide	531.2	0.0030	ND	mg/L
Baygon	531.2	0.00050	ND	mg/L
Carbaryl	531.2	0.0050	ND	mg/L
Carbofuran (Furadan)	531.2	0.0050	ND	mg/L
3-Hydroxycarbofuran	531.2	0.0030	ND	mg/L
Methiocarb	531.2	0.00050	ND	mg/L
Methomyl	531.2	0.0020	ND	mg/L
Other Organics				
Glyphosate	547	0.025	ND	mg/L
Endothall	548.1	0.045	ND	mg/L
Diquat	549.2	0.0041	ND	mg/L
Paraquat	549.2	0.0020	ND	mg/L
Hexazinone	525.2	0.000096	ND	mg/L
Prometon	525.2	0.000096	ND	mg/L
Other Compounds				
Perchlorate	331.0	0.0010	ND	mg/L
Gross Alpha	900.0	3.00	4.38	pCi/L
Gross Beta	900.0	4.00	2.31	pCi/L
Radon 222	SM7500_Rn_B	100	817	pCi/L
Radium-226	903.0	1.00	0.165	pCi/L
Radium-228	904.0	1.00	0.392	pCi/L
2,3,7,8-TCDD	1613B	0.0000000049	ND	mg/L
Perfluorooctanesulfonic acid (PFOS)	533	0.0000020	ND	mg/L
Perfluorooctanesulfonic acid (PFOS)	537.1	0.0000020	ND	mg/L
Perfluorobutanoic acid (PFBA)	533	0.0000020	ND	mg/L

ND - Not detected at the specified limit.

Eurofins Eaton Analytical Pomona
941 Corporate Center Drive
Pomona, CA 91768-2642

Laboratory Data
Job #: 380-51027-1

Client: BlueTriton Brands
5772 Jurupa St
Ontario, CA 91761
Attention: Tam Pham

Report Date: 10/09/2023

Parameter	Method	Reporting Limit	Result	Unit
Perfluorooctanoic acid (PFOA)	533	0.0000020	ND	mg/L
Perfluorooctanoic acid (PFOA)	537.1	0.0000020	ND	mg/L
Perfluoropentanoic acid (PFPeA)	533	0.0000020	ND	mg/L
Perfluorohexanoic acid (PFHxA)	533	0.0000020	ND	mg/L
Perfluorohexanoic acid (PFHxA)	537.1	0.0000020	ND	mg/L
Perfluoroheptanoic acid (PFHpA)	537.1	0.0000020	ND	mg/L
Perfluoroheptanoic acid (PFHpA)	533	0.0000020	ND	mg/L
Perfluorononanoic acid (PFNA)	533	0.0000020	ND	mg/L
Perfluorononanoic acid (PFNA)	537.1	0.0000020	ND	mg/L
Perfluorodecanoic acid (PFDA)	533	0.0000020	ND	mg/L
Perfluorodecanoic acid (PFDA)	537.1	0.0000020	ND	mg/L
Perfluorohexanesulfonic acid (PFHxS)	537.1	0.0000020	ND	mg/L
Perfluorohexanesulfonic acid (PFHxS)	533	0.0000020	ND	mg/L
N-ethylperfluorooctanesulfonamidoacetic acid	537.1	0.0000020	ND	mg/L
11-Chloroeicosafluoro-3-oxaundecane-1-sulfo	533	0.0000020	ND	mg/L
11-Chloroeicosafluoro-3-oxaundecane-1-sulfo	537.1	0.0000020	ND	mg/L
9-Chlorohexadecafluoro-3-oxanonane-1-sulfo	537.1	0.0000020	ND	mg/L
9-Chlorohexadecafluoro-3-oxanonane-1-sulfo	533	0.0000020	ND	mg/L
Perfluorobutanesulfonic acid (PFBS)	537.1	0.0000020	ND	mg/L
Perfluorobutanesulfonic acid (PFBS)	533	0.0000020	ND	mg/L
Hexavalent Chromium (CrVI)	218.6	0.010	ND	mg/L
4,8-Dioxa-3H-perfluorononanoic acid (ADONA	537.1	0.0000020	ND	mg/L
4,8-Dioxa-3H-perfluorononanoic acid (ADONA	533	0.0000020	ND	mg/L
Perfluorotetradecanoic acid (PFTA)	537.1	0.0000020	ND	mg/L
Perfluorotridecanoic acid (PFTrDA)	537.1	0.0000020	ND	mg/L
Perfluoroundecanoic acid (PFUnA)	533	0.0000020	ND	mg/L
Perfluoroundecanoic acid (PFUnA)	537.1	0.0000020	ND	mg/L
Hexafluoropropylene Oxide Dimer Acid (HFPC	537.1	0.0000020	ND	mg/L
Hexafluoropropylene Oxide Dimer Acid (HFPC	533	0.0000020	ND	mg/L
N-POC	SM 5310C	0.40	0.87	mg/L
Molybdenum	200.8	0.0020	ND	mg/L
1,4-Dioxane	522	0.000069	ND	mg/L
Other Unclassified Analytes				
Color, Apparent	SM 2120B	3.0	ND	Color Uni
Phenols, Total	420.4	0.0010	ND	mg/L
Orthophosphate as P	SM 4500 P E	0.10	ND	mg/L
Oxamyl (Vydate)	531.2	0.020	ND	mg/L
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8	533	0.0000020	ND	mg/L
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4	533	0.0000020	ND	mg/L
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:	533	0.0000020	ND	mg/L

ND - Not detected at the specified limit.

Laboratory Data
Job #: 380-51027-1

Client: BlueTriton Brands
5772 Jurupa St
Ontario, CA 91761
Attention: Tam Pham

Report Date: 10/09/2023

Parameter	Method	Reporting Limit	Result	Unit
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	533	0.0000020	ND	mg/L
Perfluoro (2-ethoxyethane) sulfonic acid (PFEI	533	0.0000020	ND	mg/L
Perfluoro-3-methoxypropanoic acid (PFMPA)	533	0.0000020	ND	mg/L
Perfluoro-4-methoxybutanoic acid (PFMBA)	533	0.0000020	ND	mg/L
Perfluoroheptanesulfonic acid (PFHpS)	533	0.0000020	ND	mg/L
Perfluoropentanesulfonic acid (PFPeS)	533	0.0000020	ND	mg/L
Di (2-ethylhexyl)phthalate	525.2	0.0029	ND	mg/L
Bicarbonate ion as HCO3	SM 2320B	2.4	190	mg/L
N-methylperfluorooctanesulfonamidoacetic aci	537.1	0.0000020	ND	mg/L
Langelier Index at 25C	2330B		0.54	LangSU
Carbonate as CO3	SM 2320B	1.2	ND	mg/L
Perfluorododecanoic acid (PFDoA)	533	0.0000020	ND	mg/L
Perfluorododecanoic acid (PFDoA)	537.1	0.0000020	ND	mg/L
cis-Permethrin	525.2	0.000096	ND	mg/L
trans-Permethrin	525.2	0.000096	ND	mg/L
Chlordane (n.o.s.)	525.2	0.000048	ND	mg/L
Chlordane (technical)	505	0.00010	ND	mg/L

ND - Not detected at the specified limit.

Eurofins Eaton Analytical Pomona
941 Corporate Center Drive
Pomona, CA 91768-2642
Phone: 626-386-1100

W230657

Chain of Custody Record

LB w4276

eurofins | Environment Testing

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Berry, Vanessa	Carrier Tracking No(s):	COC No: 380-58074.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Vanessa.Berry@et.eurofinsus.com	State of Origin: Colorado	Page: Page 1 of 1
Company: Eurofins CEI Inc		Accreditations Required (See note): ISO/IEC 17025 - A2LA; NELAP - New Jersey; NELAP - New Y ...		Job #: 380-51027-1
Address: 730 SE Maynard Road, ,	**Due Date Requested:** 7/17/2023	**Analysis Requested**		**Preservation Codes:**
City: Cary	**TAT Requested (days):**			
State, Zip: NC, 27511				
Phone:	PO #:			
Email:	WO #:			
Project Name: Source water	Project #: 38004147			
Site:	SSOW#:			**Other:**

Preservation Codes:
- A - HCL
- B - NaOH
- C - Zn Acetate
- D - Nitric Acid
- E - NaHSO4
- F - MeOH
- G - Amchlor
- H - Ascorbic Acid
- I - Ice
- J - DI Water
- K - EDTA
- L - EDA
- M - Hexane
- N - None
- O - AsNaO2
- P - Na2O4S
- Q - Na2SO3
- R - Na2S2O3
- S - H2SO4
- T - TSP Dodecahydrate
- U - Acetone
- V - MCAA
- W - pH 4-5
- Y - Trizma
- Z - other (specify)

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	SUB (100.2 Asbestos in DW)/ 100.2 Asbestos in DW	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
RMBH-3 (380-51027-1)	6/13/23	10:00 Mountain		Drinking Wate			X	1	13.7 °c

eurofins | CEI Accept Samples

Sx 6/15 9:40

Note: Since laboratory accreditations are subject to change, Eurofins Eaton Analytical, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Eaton Analytical, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Eaton Analytical, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Eaton Analytical, LLC.

Possible Hazard Identification
Unconfirmed

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* ______ *Months*

Deliverable Requested: I, II, III, IV, Other (specify)
Primary Deliverable Rank: 1
Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time: 6-15-23 9:15	Company	Received by: Sx	Date/Time: 6/15 9:40	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

6452 4636 1470

eurofins
CEI

July 17, 2023

Eurofins Eaton Analytical
941 Corporate Center Drive
Pomona, CA 91768

CLIENT PROJECT: Source Water, 38004147, 380-51027-1
LAB CODE: W230657

Dear Customer:

Enclosed are asbestos analysis results for TEM drinking water samples received at our laboratory on June 19, 2023. The samples were analyzed for asbestos using transmission electron microscopy (TEM) per the US EPA 100.2 Method.

The current EPA regulatory limit for asbestos in drinking water is 7 million fibers per liter (MFL, > 10 µm in length). The analytical sensitivity for the EPA 100.2 method is 0.2 MFL.

Thank you for your business and we look forward to continuing good relations.

Kind Regards,

Tianbao Bai, Ph.D., CIH
Laboratory Director

ASBESTOS ANALYTICAL REPORT
By: Transmission Electron Microscopy

Prepared for

Eurofins Eaton Analytical

CLIENT PROJECT: Source Water, 38004147, 380-51027-1

LAB CODE: W230657

TEST METHOD: EPA 100.2

REPORT DATE: 07/17/23

730 SE Maynard Road • Cary, NC 27511 • 919.481.1413

eurofins | CEI

ASBESTOS IN DRINKING WATER ANALYSIS

By: TRANSMISSION ELECTRON MICROSCOPY

Client: Eurofins Eaton Analytical
941 Corporate Center Drive
Pomona, CA 91768

		Lab Code:	W230657
Time Collected:	10:00 AM	**Date Collected:**	06-13-23
Time Received:	9:40 AM	**Date Received:**	06-19-23
Time Filtered:	2:50 PM	**Date Filtered:**	07-14-23
Time Analyzed:	1:47 PM	**Date Analyzed:**	07-17-23
Avg Grid Opening Size:	0.0100 mm^2	**Date Reported:**	07-17-23

Project: Source Water, 38004147, 380-51027-1

TEM DRINKING WATER (EPA 100.2)

Client ID Lab ID	Sample Volume Filtered	Dilution Factor	Effective Filter Area (mm^2)	# Of Grid Openings Analyzed	Total Area of Filter Examined	Analytical Sensitivity (MFL)	Asbestos Type	> 10 µm	Concentration (MFL)	Confidence Limit	
										Lower	Upper
RMBH-3 (380 -51027-1) W4276	100	1	1060	6	0.06	0.177	None Detected	0	**<.18**	0.0	<0.65

Sample ozonated prior to analysis due to lab receipt time exceeding 48 hr method hold time.

LEGEND:
MFL = million fibers per liter , > 10 um in length
NSD = no asbestos structures detected
ml = milliliter
CHRY = chrysotile
um = micrometer
CROC = crocidolite
mm = millimeter

METHOD: EPA 100.2

ANALYTICAL SENSITIVITY: 0.2 MFL

MAXIMUM CONTAMINANT LEVEL: 7 MFL

This report relates only to the samples tested or analyzed and may not be reproduced, except in full, without written approval by Eurofins CEI. Eurofins CEI makes no warranty representation regarding the accuracy of customer submitted information in preparing and presenting analytical results. Interpretation of the analytical results is the sole responsibility of the customer. Samples were received in acceptable condition unless otherwise noted.

Information provided by customer includes customer sample ID, location, volume and area as well as date and time of sampling.

Sample bottle was not provided by Eurofins CEI.
For the current states of certification please refer to the website: www.EurofinsUS.com/CEI

ANALYST: Partima Poudel
Partima Poudel Acharya

APPROVED BY: Tianbao Bai
Tianbao Bai, Ph.D., CIH
Laboratory Director

Eurofins **omona**
941 Corporale C
Pomona, CA 9176
Phone (626) 386-110

Chain of Cus

Client Information	Sampler: Jeremy Allenbaugh	Berry, Vanessa	Carrier Tracking No(s):	COC No: 380-27643-7204.1
Client Contact: Tam Pham	Phone: (303) 957-7411	E-Mail: Vanessa.Berry@et.eurofinsus.com	State of Origin: Colorado	Page: Page 1 of 3

Company: BlueTriton Brands	PWSID:	Job #:
Address: 12974 US-24,	Due Date Requested:	
City: Buena Vista	TAT Requested (days):	
State, Zip: CO, 18211	Compliance Project: Δ Yes Δ No	
Phone: 602-734-2846(Tel)	PO #: 4520128226	
Email: Tam.Pham@bluetriton.com	WO #:	
Project Name: Source water	Project #: 38004147	
Site: 2023 Source	SSOW#:	

Analysis Requested

Preservation Codes:

A - HCL
B - NaOH
C - Zn Acetate
D - Nitric Acid
E - NaHSO4
F - MeOH
G - Amchlor
H - Ascorbic Acid
I - Ice
J - DI Water
K - EDTA
L - EDA

M - Hexane
N - None
O - AsNaO2
P - Na2O4S
Q - Na2SO3
R - Na2S2O3
S - H2SO4
T - TSP Dodecahydrate
U - Acetone
V - MCAA
W - pH 4-5
Y - Trizma
Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	300.1_PREC - Bromide	1613B_IDA - TCDD	SM7500_Rn_B - Radon	549.2_PREC - 549.2 Diquat and Paraquat	548.1_PREC - 548.1 Endothall	522_MOD_PREC - Dioxane	504.1_LL_PREC, 505_PREC	547_PREC - 547 Glyphosate	GIT_RA226_RA228 - GIT - RA226 & 228	5310C - TOC	2320B, 2510B, SM4500_H+	200.7_SDWA, 200.8_Hg, 200.8_LL, 200.8_SDWA	537.1_DW_PREC - 537.1 Full List	Total Number of containers	Special Instructions/Note:
				Preservation Code:			L	R	N	R	R		R	R	D	S	N	D	Y		
RMBH-3				Drinking Wate			x	x	x	x	x	x	x	x	x	x	x	x	x		
Field Blank				Drinking Wate															x		Field Blank - hold for detections
Trip Blank				Drinking Wate																	

380-51027 COC

Possible Hazard Identification
☐ *Non-Hazard* ☐ *Flammable* ☐ *Skin Irritant* ☐ *Poison B* ☐ *Unknown* ☐ *Radiological*

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For __________ Months*

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements: UPS 1 # 1Z57RE9736957103

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment: 2 # 1Z57RE9715205717 28

Relinquished by:	Date/Time: 6-13-23 1200	Company	Received by:	Date/Time: 6/14/23 7:20	Company EETA
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: (750) 11.6 - 0.1 = 11.5 GEL ICE (750) 6.7 - 0.1 = 6.6 GEL ICE

Eurofins Eaton Analytical Pomona
941 Corporate Center Drive
Pomona, CA 91768-2642
Phone: 626-386-1100

Chain of Custody Record

eurofins | Environment Testing

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Berry, Vanessa	Carrier Tracking No(s):	COC No: 380-58071.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Vanessa.Berry@et.eurofinsus.com	State of Origin: Colorado	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): ISO/IEC 17025 - A2LA; NELAP - New Jersey; NELAP - New Y ...		Job #: 380-51027-1

Address:
13715 Rider Trail North, ,
City:
Earth City
State, Zip:
MO, 63045
Phone:
314-298-8566(Tel) 314-298-8757(Fax)
Email:
Project Name:
Source water
Site:

Due Date Requested:
7/17/2023
TAT Requested (days):
PO #:
WO #:
Project #:
38004147
SSOW#:

Analysis Requested

Preservation Codes:

A - HCL
B - NaOH
C - Zn Acetate
D - Nitric Acid
E - NaHSO4
F - MeOH
G - Amchlor
H - Ascorbic Acid
I - Ice
J - DI Water
K - EDTA
L - EDA

M - Hexane
N - None
O - AsNaO2
P - Na2O4S
Q - Na2SO3
R - Na2S2O3
S - H2SO4
T - TSP Dodecahydrate
U - Acetone
V - MCAA
W - pH 4-5
Y - Trizma
Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	**Sample Date**	**Sample Time**	**Sample Type (C=Comp, G=grab)**	**Matrix** (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	**Field Filtered Sample (Yes or No)**	**Perform MS/MSD (Yes or No)**	**900.0/Evaporation Gross Alpha & Beta**	**903.0/PrecSep_21 Radium-226**	**904.0/PrecSep_0 Radium-228**	**Total Number of containers**	**Special Instructions/Note:**
				Preservation Code:							
RMBH-3 (380-51027-1)	6/13/23	10:00 Mountain		Drinking Wate			X	X	X	6	SDWA Extend count time if needed to meet MDC-

Note: Since laboratory accreditations are subject to change, Eurofins Eaton Analytical, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Eaton Analytical, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Eaton Analytical, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Eaton Analytical, LLC.

Possible Hazard Identification
Unconfirmed

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* ______ *Months*

Deliverable Requested: I, II, III, IV, Other (specify)
Primary Deliverable Rank: 1
Special Instructions/QC Requirements:

Empty Kit Relinquished by:
Date:
Time:
Method of Shipment:

Relinquished by:	Date/Time: 6.15.23 9150	Company	Received by: fedex	Date/Time:	Company
Relinquished by: fedex	Date/Time:	Company	Received by: Briana Sharkey - Gonzalez	Date/Time: 6/16/23 0900	Company ETASTL
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact:
∆ Yes ∆ No
Custody Seal No.:
Cooler Temperature(s) °C and Other Remarks:

Ver: 06/08/2021

Eurofins Eaton Analytical Pomona
941 Corporate Center Drive
Pomona, CA 91768-2642
Phone: 626-386-1100

Chain of Custody Record

eurofins | Environment Testing

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Berry, Vanessa	Carrier Tracking No(s):	COC No: 380-58068.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Vanessa.Berry@et.eurofinsus.com	State of Origin: Colorado	Page: Page 1 of 1
Company: Eurofins Eaton Analytical		Accreditations Required (See note): ISO/IEC 17025 - A2LA; NELAP - New Jersey; NELAP - New Y ...		Job #: 380-51027-1
Address: 110 S Hill Street, ,	**Due Date Requested:** 7/17/2023			
City: South Bend	**TAT Requested (days):**			
State, Zip: IN, 46617				
Phone: 574-233-4777(Tel) 574-233-8207(Fax)	PO #:			
Email:	WO #:			
Project Name: Source water	Project #: 38004147			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Y - Trizma
	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	505_PREC/505_Prep (MOD) 505 Pesticides/PCBs	525.2_PREC/525.2_Prep (MOD) 525 Full List	525.2_PREC/525.2_Prep_Neut 525 Prometon	SM7500_Rn_B/Rad_Prep Radon	Total Number of containers	Special Instructions/Note:
			Preservation Code:									
RMBH-3 (380-51027-1)	6/13/23	10:00 Mountain		Drinking Wate			X	X	X	X	7	

Initial Temp. 2.0
Corrected Temp. 2.8
IR Gun # 28 wet

Note: Since laboratory accreditations are subject to change, Eurofins Eaton Analytical, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Eaton Analytical, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Eaton Analytical, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Eaton Analytical, LLC.

Possible Hazard Identification
Unconfirmed

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* ____ *Months*

Deliverable Requested: I, II, III, IV, Other (specify)

Primary Deliverable Rank: 1

Special Instructions/QC Requirements:

Empty Kit Relinquished by: Date: Time: Method of Shipment:

Relinquished by:	Date/Time: 6.15.23 8:38	Company	Received by: Perry Pehling Wright	Date/Time: 06/16/23 0900	Company EEA
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No

Custody Seal No.: Client Provided Sample Container

Cooler Temperature(s) °C and Other Remarks:

Ver: 06/08/2021

Case Narrative

Job ID: 380-54165-1

Laboratory: Eurofins Eaton Analytical Pomona

Narrative

Job Narrative
380-54165-1

Receipt
The samples were received on 7/12/2023 8:49 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 0.5°C

GC/MS VOA
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC/MS Semi VOA
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC Semi VOA
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

HPLC/IC
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Metals
Method 200.8: The continuing calibration blank (CCB) for analytical batch 380-48054 contained Dissolved Silver above the reporting limit (RL). All reported samples associated with this CCB were either ND for this analyte or contained this analyte at a concentration greater than 10X the value found in the CCB; therefore, re-analysis of samples was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

General Chemistry
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Gas Flow Proportional Counter
Method 900.0: Gross Alpha and Gross Beta batch 620597Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.BVMW-10 (380-54165-1), (LCS 160-620597/2-A), (LCSB 160-620597/3-A), (MB 160-620597/1-A), (570-144741-N-1-A), (570-144741-N-1-D DU), (570-144741-N-1-B MS) and (570-144741-N-1-C MSBT)

Method 903.0: Radium-226 batch 620385Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.BVMW-10 (380-54165-1), (LCS 160-620385/2-A), (MB 160-620385/1-A), (280-178929-C-2-A), (280-178929-C-2-B MS) and (280-178929-C-2-C MSD)

Method 904.0: Radium-228 prep batch 160-620386:Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. BVMW-10 (380-54165-1), (LCS 160-620386/2-A), (MB 160-620386/1-A), (280-178929-C-2-D), (280-178929-C-2-E MS) and (280-178929-C-2-F MSD)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Rad
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Client Sample Results

Client Sample ID: BVMW-10
Date Collected: 07/11/23 09:00
Date Received: 07/12/23 08:49

Lab Sample ID: 380-54165-1
Matrix: Water

Method: EPA-DW 524.2 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Dichlorodifluoromethane	ND	*+	0.50		ug/L			07/21/23 21:49	1
Chloromethane (methyl chloride)	ND		0.50		ug/L			07/21/23 21:49	1
Vinyl Chloride (VC)	ND		0.30		ug/L			07/21/23 21:49	1
Bromomethane (Methyl Bromide)	ND		0.50		ug/L			07/21/23 21:49	1
Chloroethane	ND		0.50		ug/L			07/21/23 21:49	1
Trichlorofluoromethane (Freon 11)	ND		0.50		ug/L			07/21/23 21:49	1
1,1-Dichlorethylene	ND		0.50		ug/L			07/21/23 21:49	1
Bromoethane	ND		0.50		ug/L			07/21/23 21:49	1
Trichlorotrifluoroethane	ND		0.50		ug/L			07/21/23 21:49	1
Carbon disulfide	ND		0.50		ug/L			07/21/23 21:49	1
Dichloromethane	**0.63**		0.50		ug/L			07/21/23 21:49	1
trans-1,2-Dichloroethylene	ND		0.50		ug/L			07/21/23 21:49	1
Methyl-tert-butyl Ether (MTBE)	ND		0.50		ug/L			07/21/23 21:49	1
1,1-Dichloroethane	ND		0.50		ug/L			07/21/23 21:49	1
2-Butanone (MEK)	ND		5.0		ug/L			07/21/23 21:49	1
Diisopropyl ether	ND		3.0		ug/L			07/21/23 21:49	1
cis-1,2-Dichloroethylene	ND		0.50		ug/L			07/21/23 21:49	1
2,2-Dichloropropane	ND		0.50		ug/L			07/21/23 21:49	1
Bromochloromethane	ND		0.50		ug/L			07/21/23 21:49	1
Chloroform (Trichloromethane)	ND		0.50		ug/L			07/21/23 21:49	1
Tert-butyl ethyl ether	ND		3.0		ug/L			07/21/23 21:49	1
1,1,1-Trichloroethane	ND		0.50		ug/L			07/21/23 21:49	1
1,2-Dichloroethane	ND		0.50		ug/L			07/21/23 21:49	1
1,1-Dichloropropene	ND		0.50		ug/L			07/21/23 21:49	1
Benzene	ND		0.50		ug/L			07/21/23 21:49	1
Carbon tetrachloride	ND		0.50		ug/L			07/21/23 21:49	1
Tert-amyl methyl ether	ND		3.0		ug/L			07/21/23 21:49	1
Trichloroethylene (TCE)	ND		0.50		ug/L			07/21/23 21:49	1
1,2-Dichloropropane	ND		0.50		ug/L			07/21/23 21:49	1
Dibromomethane	ND		0.50		ug/L			07/21/23 21:49	1
Bromodichloromethane	ND		0.50		ug/L			07/21/23 21:49	1
cis-1,3-Dichloropropene	ND		0.50		ug/L			07/21/23 21:49	1
trans-1,3-Dichloropropene	ND		0.50		ug/L			07/21/23 21:49	1
Toluene	ND		0.50		ug/L			07/21/23 21:49	1
1,1,2-Trichloroethane	ND		0.50		ug/L			07/21/23 21:49	1
2-Hexanone	ND		10		ug/L			07/21/23 21:49	1
1,3-Dichloropropane	ND		0.50		ug/L			07/21/23 21:49	1
Dibromochloromethane	ND		0.50		ug/L			07/21/23 21:49	1
Tetrachloroethene (PCE)	ND		0.50		ug/L			07/21/23 21:49	1
Chlorobenzene	ND		0.50		ug/L			07/21/23 21:49	1
1,1,1,2-Tetrachloroethane	ND		0.50		ug/L			07/21/23 21:49	1
Ethylbenzene	ND		0.50		ug/L			07/21/23 21:49	1
m,p-Xylenes	ND		0.50		ug/L			07/21/23 21:49	1
Styrene	ND		0.50		ug/L			07/21/23 21:49	1
o-Xylene	ND		0.50		ug/L			07/21/23 21:49	1
Bromoform	ND		0.50		ug/L			07/21/23 21:49	1
1,1,2,2-Tetrachloroethane	ND		0.50		ug/L			07/21/23 21:49	1
1,2,3-Trichloropropane	ND		0.50		ug/L			07/21/23 21:49	1
Isopropylbenzene	ND		0.50		ug/L			07/21/23 21:49	1

Client Sample Results

Client Sample ID: BVMW-10

Lab Sample ID: 380-54165-1

Date Collected: 07/11/23 09:00
Matrix: Water
Date Received: 07/12/23 08:49

Method: EPA-DW 524.2 - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Bromobenzene	ND		0.50		ug/L			07/21/23 21:49	1
N-Propylbenzene	ND		0.50		ug/L			07/21/23 21:49	1
o-Chlorotoluene	ND		0.50		ug/L			07/21/23 21:49	1
p-Chlorotoluene	ND		0.50		ug/L			07/21/23 21:49	1
1,3,5-Trimethylbenzene	ND		0.50		ug/L			07/21/23 21:49	1
tert-Butylbenzene	ND		0.50		ug/L			07/21/23 21:49	1
1,2,4-Trimethylbenzene	ND		0.50		ug/L			07/21/23 21:49	1
sec-Butylbenzene	ND		0.50		ug/L			07/21/23 21:49	1
m-Dichlorobenzene (1,3-DCB)	ND		0.50		ug/L			07/21/23 21:49	1
p-Dichlorobenzene (1,4-DCB)	ND		0.50		ug/L			07/21/23 21:49	1
p-Isopropyltoluene	ND		0.50		ug/L			07/21/23 21:49	1
o-Dichlorobenzene (1,2-DCB)	ND		0.50		ug/L			07/21/23 21:49	1
n-Butylbenzene	ND		0.50		ug/L			07/21/23 21:49	1
1,2,4-Trichlorobenzene	ND	^3+	0.50		ug/L			07/21/23 21:49	1
Naphthalene	ND		0.50		ug/L			07/21/23 21:49	1
Hexachlorobutadiene	ND		0.50		ug/L			07/21/23 21:49	1
1,2,3-Trichlorobenzene	ND		0.50		ug/L			07/21/23 21:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*70 - 130*		*07/21/23 21:49*	*1*
4-Bromofluorobenzene (Surr)	*101*		*70 - 130*		*07/21/23 21:49*	*1*
Toluene-d8 (Surr)	*88*		*70 - 130*		*07/21/23 21:49*	*1*

Method: EPA 548.1 - Endothall (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Endothall	ND		5.0		ug/L		07/13/23 11:20	07/17/23 13:04	1

Method: EPA 505 - Organochlorine Pesticides/PCBs (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chlordane	ND		0.10		ug/L		07/14/23 13:00	07/14/23 19:10	1
Endrin	ND		0.010		ug/L		07/14/23 13:00	07/14/23 19:10	1
Heptachlor	ND		0.010		ug/L		07/14/23 13:00	07/14/23 19:10	1
Heptachlor epoxide (isomer B)	ND		0.010		ug/L		07/14/23 13:00	07/14/23 19:10	1
Methoxychlor	ND		0.050		ug/L		07/14/23 13:00	07/14/23 19:10	1
Lindane	ND		0.010		ug/L		07/14/23 13:00	07/14/23 19:10	1
Alachlor (Alanex)	ND		0.10		ug/L		07/14/23 13:00	07/14/23 19:10	1
Toxaphene	ND		0.50		ug/L		07/14/23 13:00	07/14/23 19:10	1
PCB-1016	ND		0.070		ug/L		07/14/23 13:00	07/14/23 19:10	1
PCB-1221	ND		0.10		ug/L		07/14/23 13:00	07/14/23 19:10	1
PCB-1232	ND		0.10		ug/L		07/14/23 13:00	07/14/23 19:10	1
PCB-1242	ND		0.10		ug/L		07/14/23 13:00	07/14/23 19:10	1
PCB-1248	ND		0.10		ug/L		07/14/23 13:00	07/14/23 19:10	1
PCB-1254	ND		0.10		ug/L		07/14/23 13:00	07/14/23 19:10	1
PCB-1260	ND		0.070		ug/L		07/14/23 13:00	07/14/23 19:10	1
Polychlorinated biphenyls, Total	ND		0.10		ug/L		07/14/23 13:00	07/14/23 19:10	1
Aldrin	ND		0.010		ug/L		07/14/23 13:00	07/14/23 19:10	1
Dieldrin	ND		0.010		ug/L		07/14/23 13:00	07/14/23 19:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*99*		*70 - 130*	*07/14/23 13:00*	*07/14/23 19:10*	*1*

Client Sample Results

Client: S.S. Papadopulos & Associates, Inc.
Project/Site: Water Quality- (MW) SOC, GMIO, RADS

Job ID: 380-54165-1

Client Sample ID: BVMW-10

Date Collected: 07/11/23 09:00
Date Received: 07/12/23 08:49

Lab Sample ID: 380-54165-1
Matrix: Water

Method: EPA-DW 515.4 - Herbicides (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,5-TP (Silvex)	ND		0.20	ug/L		07/19/23 10:00	07/20/23 06:40	1
2,4,5-T	ND		0.20	ug/L		07/19/23 10:00	07/20/23 06:40	1
Dinoseb	ND		0.20	ug/L		07/19/23 10:00	07/20/23 06:40	1
2,4-D	ND		0.10	ug/L		07/19/23 10:00	07/20/23 06:40	1
2,4-DB	ND		2.0	ug/L		07/19/23 10:00	07/20/23 06:40	1
Bentazon	ND		0.50	ug/L		07/19/23 10:00	07/20/23 06:40	1
Pentachlorophenol	ND		0.040	ug/L		07/19/23 10:00	07/20/23 06:40	1
Dalapon	ND		1.0	ug/L		07/19/23 10:00	07/20/23 06:40	1
3,5-Dichlorobenzoic acid	ND		0.50	ug/L		07/19/23 10:00	07/20/23 06:40	1
Picloram	ND		0.10	ug/L		07/19/23 10:00	07/20/23 06:40	1
Acifluorfen	ND		0.20	ug/L		07/19/23 10:00	07/20/23 06:40	1
Dicamba	ND		0.10	ug/L		07/19/23 10:00	07/20/23 06:40	1
Dichlorprop	ND		0.50	ug/L		07/19/23 10:00	07/20/23 06:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid (Surr)	*99*		*70 - 130*	*07/19/23 10:00*	*07/20/23 06:40*	*1*
2,4-Dichlorophenylacetic acid (Surr)	*101*		*70 - 130*	*07/19/23 10:00*	*07/20/23 06:40*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Bromide	**30**		5.0	ug/L			07/19/23 01:41	1
Chloride	**3.2**		0.50	mg/L			07/12/23 19:36	1
Nitrate as N	**0.60**		0.050	mg/L			07/12/23 19:36	1
Nitrite as N	ND		0.050	mg/L			07/12/23 19:36	1
Sulfate	**25**		0.25	mg/L			07/12/23 19:36	1

Method: EPA 531.2 - Carbamate Pesticides (HPLC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
3-Hydroxycarbofuran	ND		0.50	ug/L		07/13/23 14:22	07/15/23 00:37	1
Aldicarb	ND		0.50	ug/L		07/13/23 14:22	07/15/23 00:37	1
Aldicarb sulfone	ND		0.50	ug/L		07/13/23 14:22	07/15/23 00:37	1
Aldicarb sulfoxide	ND		0.50	ug/L		07/13/23 14:22	07/15/23 00:37	1
Baygon	ND		0.50	ug/L		07/13/23 14:22	07/15/23 00:37	1
Carbaryl	ND		0.50	ug/L		07/13/23 14:22	07/15/23 00:37	1
Carbofuran	ND		0.50	ug/L		07/13/23 14:22	07/15/23 00:37	1
Methiocarb	ND		0.50	ug/L		07/13/23 14:22	07/15/23 00:37	1
Methomyl	ND		0.50	ug/L		07/13/23 14:22	07/15/23 00:37	1
Oxamyl	ND		0.50	ug/L		07/13/23 14:22	07/15/23 00:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
BDMC	*88*		*70 - 130*	*07/13/23 14:22*	*07/15/23 00:37*	*1*

Method: EPA 547 - Glyphosate (DAI HPLC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Glyphosate	ND		6.0	ug/L		07/17/23 11:44	07/17/23 16:37	1

Method: EPA 549.2 - Diquat and Paraquat (HPLC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Diquat	ND		0.40	ug/L		07/12/23 15:47	07/14/23 19:45	1
Paraquat	ND		2.0	ug/L		07/12/23 15:47	07/14/23 19:45	1

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Client Sample ID: BVMW-10
Lab Sample ID: 380-54165-1
Date Collected: 07/11/23 09:00
Matrix: Water
Date Received: 07/12/23 08:49

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**47**		1.0		mg/L		07/14/23 11:32	07/17/23 16:00	1
Iron	**0.60**		0.010		mg/L		07/14/23 11:32	07/17/23 16:00	1
Magnesium	**13**		0.10		mg/L		07/14/23 11:32	07/17/23 16:00	1
Potassium	**1.8**		1.0		mg/L		07/14/23 11:32	07/17/23 16:00	1
Sodium	**6.8**		1.0		mg/L		07/14/23 11:32	07/17/23 16:00	1

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Calcium	**45**		1.0		mg/L			07/24/23 11:30	1
Dissolved Iron	**0.011**		0.010		mg/L			07/24/23 11:30	1
Dissolved Magnesium	**12**		0.10		mg/L			07/24/23 11:30	1
Dissolved Potassium	**1.5**		1.0		mg/L			07/24/23 11:30	1
Dissolved Sodium	**6.3**		1.0		mg/L			07/24/23 11:30	1

Method: EPA 200.8 - Mercury (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Hg	ND		0.20		ug/L		07/14/23 08:16	07/14/23 19:01	1

Method: EPA 200.8 - Mercury (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Mercury, Dissolved	ND		0.20		ug/L			07/19/23 14:56	1

Method: EPA 200.8 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		1.0		ug/L		07/14/23 08:16	07/14/23 19:01	1
Barium	**65**		2.0		ug/L		07/14/23 08:16	07/14/23 19:01	1
Cadmium	ND		0.50		ug/L		07/14/23 08:16	07/14/23 19:01	1
Chromium	**1.5**		1.0		ug/L		07/14/23 08:16	07/14/23 19:01	1
Lead	ND		0.50		ug/L		07/14/23 08:16	07/14/23 19:01	1
Manganese	**12**		2.0		ug/L		07/14/23 08:16	07/14/23 19:01	1
Selenium	ND		5.0		ug/L		07/14/23 08:16	07/14/23 19:01	1
Silver	ND		0.50		ug/L		07/14/23 08:16	07/14/23 19:01	1
Uranium	**2.5**		0.67		pCi/L		07/14/23 08:16	07/14/23 19:01	1

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Uranium	**2.5**		0.67		pCi/L		07/14/23 08:16	07/14/23 19:01	1

Method: EPA 200.8 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Arsenic	ND		1.0		ug/L			07/19/23 14:56	1
Dissolved Barium	**60**		2.0		ug/L			07/19/23 14:56	1
Dissolved Cadmium	ND		0.50		ug/L			07/19/23 14:56	1
Dissolved Chromium	ND		1.0		ug/L			07/19/23 14:56	1
Dissolved Lead	ND		0.50		ug/L			07/19/23 14:56	1
Dissolved Manganese	ND		2.0		ug/L			07/19/23 14:56	1
Dissolved Selenium	ND		5.0		ug/L			07/19/23 14:56	1
Dissolved Silver	ND		0.50		ug/L			07/19/23 14:56	1

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity as CaCO3 (SM 2320B)	**140**		2.0		mg/L			07/14/23 21:08	1

Client Sample Results

Client Sample ID: BVMW-10

Lab Sample ID: 380-54165-1

Date Collected: 07/11/23 09:00

Matrix: Water

Date Received: 07/12/23 08:49

General Chemistry (Continued)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**140**		2.0		mg/L			07/14/23 21:08	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	ND		2.0		mg/L			07/14/23 21:08	1
Hydroxide Alkalinity as CaCO3 (SM 2320B)	ND		2.0		mg/L			07/14/23 21:08	1
Specific Conductance (SM 2510B)	**330**		2.0		umhos/cm			07/14/23 21:08	1
Total Dissolved Solids (SM 2540C)	**200**		20		mg/L			07/12/23 18:32	1
Total Suspended Solids (SM 2540D)	**18**		10		mg/L			07/17/23 18:09	1
Fluoride (SM 4500 F C)	**0.49**		0.050		mg/L			07/14/23 16:16	1
pH (SM 4500 H+ B)	**8.2**	**HF**	0.01		SU			07/14/23 21:08	1
Orthophosphate as P (SM 4500 P E)	**0.030**		0.010		mg/L			07/12/23 18:46	1

Method: EPA 900.0 - Gross Alpha and Gross Beta Radioactivity

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Gross Alpha	**3.84**		2.03	2.08	3.00	1.72	pCi/L	07/18/23 09:26	07/26/23 07:55	1
Gross Beta	**3.08**		0.849	0.903	4.00	0.602	pCi/L	07/18/23 09:26	07/26/23 07:55	1

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.220**		0.126	0.128	1.00	0.160	pCi/L	07/17/23 10:24	08/08/23 07:38	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*90.2*		*30 - 110*	*07/17/23 10:24*	*08/08/23 07:38*	*1*

Method: EPA 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.193	U	0.376	0.376	1.00	0.650	pCi/L	07/17/23 10:28	08/02/23 11:49	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*90.2*		*30 - 110*	*07/17/23 10:28*	*08/02/23 11:49*	*1*
Y Carrier	*92.7*		*30 - 110*	*07/17/23 10:28*	*08/02/23 11:49*	*1*

Method: TAL-STL Ra226_Ra228 Pos - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.412	U	0.397	0.397	5.00	0.650	pCi/L		08/08/23 16:16	1

Client Sample Results

Client Sample ID: TRIP BLANK

Lab Sample ID: 380-54165-2

Date Collected: 07/11/23 09:00

Matrix: Water

Date Received: 07/12/23 08:49

Method: EPA-DW 524.2 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Dichlorodifluoromethane	ND		0.50		ug/L			07/24/23 16:29	1
Chloromethane (methyl chloride)	ND		0.50		ug/L			07/24/23 16:29	1
Vinyl Chloride (VC)	ND		0.30		ug/L			07/24/23 16:29	1
Bromomethane (Methyl Bromide)	ND		0.50		ug/L			07/24/23 16:29	1
Chloroethane	ND		0.50		ug/L			07/24/23 16:29	1
Trichlorofluoromethane (Freon 11)	ND		0.50		ug/L			07/24/23 16:29	1
1,1-Dichlorethylene	ND		0.50		ug/L			07/24/23 16:29	1
Bromoethane	ND		0.50		ug/L			07/24/23 16:29	1
Trichlorotrifluoroethane	ND		0.50		ug/L			07/24/23 16:29	1
Carbon disulfide	ND		0.50		ug/L			07/24/23 16:29	1
Dichloromethane	ND		0.50		ug/L			07/24/23 16:29	1
trans-1,2-Dichloroethylene	ND		0.50		ug/L			07/24/23 16:29	1
Methyl-tert-butyl Ether (MTBE)	ND		0.50		ug/L			07/24/23 16:29	1
1,1-Dichloroethane	ND		0.50		ug/L			07/24/23 16:29	1
2-Butanone (MEK)	ND		5.0		ug/L			07/24/23 16:29	1
Diisopropyl ether	ND		3.0		ug/L			07/24/23 16:29	1
cis-1,2-Dichloroethylene	ND		0.50		ug/L			07/24/23 16:29	1
2,2-Dichloropropane	ND		0.50		ug/L			07/24/23 16:29	1
Bromochloromethane	ND		0.50		ug/L			07/24/23 16:29	1
Chloroform (Trichloromethane)	ND		0.50		ug/L			07/24/23 16:29	1
Tert-butyl ethyl ether	ND		3.0		ug/L			07/24/23 16:29	1
1,1,1-Trichloroethane	ND		0.50		ug/L			07/24/23 16:29	1
1,2-Dichloroethane	ND		0.50		ug/L			07/24/23 16:29	1
1,1-Dichloropropene	ND		0.50		ug/L			07/24/23 16:29	1
Benzene	ND		0.50		ug/L			07/24/23 16:29	1
Carbon tetrachloride	ND		0.50		ug/L			07/24/23 16:29	1
Tert-amyl methyl ether	ND		3.0		ug/L			07/24/23 16:29	1
Trichloroethylene (TCE)	ND		0.50		ug/L			07/24/23 16:29	1
1,2-Dichloropropane	ND		0.50		ug/L			07/24/23 16:29	1
Dibromomethane	ND		0.50		ug/L			07/24/23 16:29	1
Bromodichloromethane	ND		0.50		ug/L			07/24/23 16:29	1
cis-1,3-Dichloropropene	ND		0.50		ug/L			07/24/23 16:29	1
trans-1,3-Dichloropropene	ND		0.50		ug/L			07/24/23 16:29	1
Toluene	ND		0.50		ug/L			07/24/23 16:29	1
1,1,2-Trichloroethane	ND		0.50		ug/L			07/24/23 16:29	1
2-Hexanone	ND		10		ug/L			07/24/23 16:29	1
1,3-Dichloropropane	ND		0.50		ug/L			07/24/23 16:29	1
Dibromochloromethane	ND		0.50		ug/L			07/24/23 16:29	1
Tetrachloroethene (PCE)	ND		0.50		ug/L			07/24/23 16:29	1
Chlorobenzene	ND		0.50		ug/L			07/24/23 16:29	1
1,1,1,2-Tetrachloroethane	ND		0.50		ug/L			07/24/23 16:29	1
Ethylbenzene	ND		0.50		ug/L			07/24/23 16:29	1
m,p-Xylenes	ND		0.50		ug/L			07/24/23 16:29	1
Styrene	ND		0.50		ug/L			07/24/23 16:29	1
o-Xylene	ND		0.50		ug/L			07/24/23 16:29	1
Bromoform	ND		0.50		ug/L			07/24/23 16:29	1
1,1,2,2-Tetrachloroethane	ND		0.50		ug/L			07/24/23 16:29	1
1,2,3-Trichloropropane	ND		0.50		ug/L			07/24/23 16:29	1
Isopropylbenzene	ND		0.50		ug/L			07/24/23 16:29	1

Client Sample Results

Client: S.S. Papadopulos & Associates, Inc.
Project/Site: Water Quality- (MW) SOC, GMIO, RADS

Job ID: 380-54165-1

Client Sample ID: TRIP BLANK

Date Collected: 07/11/23 09:00
Date Received: 07/12/23 08:49

Lab Sample ID: 380-54165-2
Matrix: Water

Method: EPA-DW 524.2 - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Bromobenzene	ND		0.50		ug/L			07/24/23 16:29	1
N-Propylbenzene	ND		0.50		ug/L			07/24/23 16:29	1
o-Chlorotoluene	ND		0.50		ug/L			07/24/23 16:29	1
p-Chlorotoluene	ND		0.50		ug/L			07/24/23 16:29	1
1,3,5-Trimethylbenzene	ND		0.50		ug/L			07/24/23 16:29	1
tert-Butylbenzene	ND		0.50		ug/L			07/24/23 16:29	1
1,2,4-Trimethylbenzene	ND		0.50		ug/L			07/24/23 16:29	1
sec-Butylbenzene	ND		0.50		ug/L			07/24/23 16:29	1
m-Dichlorobenzene (1,3-DCB)	ND		0.50		ug/L			07/24/23 16:29	1
p-Dichlorobenzene (1,4-DCB)	ND		0.50		ug/L			07/24/23 16:29	1
p-Isopropyltoluene	ND		0.50		ug/L			07/24/23 16:29	1
o-Dichlorobenzene (1,2-DCB)	ND		0.50		ug/L			07/24/23 16:29	1
n-Butylbenzene	ND		0.50		ug/L			07/24/23 16:29	1
1,2,4-Trichlorobenzene	ND		0.50		ug/L			07/24/23 16:29	1
Naphthalene	ND		0.50		ug/L			07/24/23 16:29	1
Hexachlorobutadiene	ND		0.50		ug/L			07/24/23 16:29	1
1,2,3-Trichlorobenzene	ND		0.50		ug/L			07/24/23 16:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*105*		*70 - 130*		*07/24/23 16:29*	*1*
4-Bromofluorobenzene (Surr)	*101*		*70 - 130*		*07/24/23 16:29*	*1*
Toluene-d8 (Surr)	*96*		*70 - 130*		*07/24/23 16:29*	*1*

Eurofins Eaton Analytical Pomona
941 Corporate Center Drive
Pomona, CA 91768-2642
Phone: 626-386-1100

Chain of Custody Record

eurofins | Environment Testing

Client Information	Sampler: Tate Knight	Lab PM: Van Natta, Monica	Carrier Tracking No(s):	COC No: 380-36627-9888.1
Client Contact: Elizabeth Jones	Phone:	E-Mail: Monica.VanNatta@et.eurofinsus.com	State of Origin:	Page: Page 1 of 2

Company: S.S. Papadopulos & Associates, Inc.	PWSID:
Address: 3100 Arapahoe Avenue Suite 203	**Due Date Requested:**
City: Boulder	**TAT Requested (days):**
State, Zip: CO, 80303	**Compliance Project:** Δ Yes Δ No
Phone:	PO #: Purchase Order not required
Email: liz@sspa.com tknight@sspa.com	WO #:
Project Name: Water Quality- (MW) SOC, GMIO, RADS	Project #: 38005397
Site:	SSOW#:

Job #:

Analysis Requested

Preservation Codes:

A - HCL
B - NaOH
C - Zn Acetate
D - Nitric Acid
E - NaHSO4
F - MeOH
G - Amchlor
H - Ascorbic Acid
I - Ice
J - DI Water
K - EDTA
L - EDA
M - Hexane
N - None
O - AsNaO2
P - Na2O4S
Q - Na2SO3
R - Na2S2O3
S - H2SO4
T - TSP Dodecahydrate
U - Acetone
V - MCAA
W - pH 4-5
Y - Trizma
Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	903.0 - Radium-226	904.0 - Radium-228	900.0 - Gross Alpha and Gross Beta	549.2_PREC - Diquat	548.1_PREC - Endothall	505_PREC - @ML505	547_PREC - Glyphosate	2320B, 2510B, SM4500_H+	200.7, 200.8, 200.8_Hg	200.7, 200.8, 200.8_Hg	515.4_PREC - @ML515.4	531.2_PREC - @ML531.2 (Full List)	2540C_Calcd, 2540D	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	D	D	R	R	R	R	N	N	D	Q		N		
BVMW-10	7/11/23	900		Water	N		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	31	
TRIP BLANK-do not open				Water																	

380-54165 COC

Possible Hazard Identification
☐ *Non-Hazard* ☐ *Flammable* ☐ *Skin Irritant* ☐ *Poison B* ☐ *Unknown* ☐ *Radiological*

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For ________ Months*

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements: FEDEX #

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment: 6452 4637 3930

Relinquished by:	Date/Time: 7/11/23 1200	Company SSPA	Received by:	Date/Time: 7/12/23 8:49	Company EEAP
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: (250) 0.6 - 0.1 = 0.5 Real ICE FROZEN

Eurofins Eaton Analytical Pomona
941 Corporate Center Drive
Pomona, CA 91768-2642
Phone: 626-386-1100

Chain of Custody Record

eurofins Environment Testing

Client Information (Sub Contract Lab)
Sampler:
Lab PM: Van Natta, Monica
Carrier Tracking No(s):
COC No: 380-62666.1
Client Contact: Shipping/Receiving
Phone:
E-Mail: Monica.VanNatta@et.eurofinsus.com
State of Origin: Colorado
Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.
Accreditations Required (See note): State - California
Job #: 380-54165-1
Address: 13715 Rider Trail North, ,
Due Date Requested: 8/14/2023
City: Earth City
TAT Requested (days):
State, Zip: MO, 63045
Phone: 314-298-8566(Tel) 314-298-8757(Fax)
PO #:
Email:
WO #:
Project Name: Water Quality- (MW) SOC, GMIO, RADS
Project #: 38005397
Site:
SSOW#:

Analysis Requested

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	900.0/Evaporation Gross Alpha and Gross Beta	903.0/PrecSep_21 Radium-226	904.0/PrecSep_0 Radium-228	Ra226_228GFPC_P/ Combined Radium-226 + Radium-228	Total Number of containers	Special Instructions/Note:
			Preservation Code:									
BVMW-10 (380-54165-1)	7/11/23	09:00 Mountain		Water			X	X	X	X	3	SDWA-If prescreen is greater than 50 mg, contact PM to log 7110 for gross alpha

Preservation Codes:
A - HCL
B - NaOH
C - Zn Acetate
D - Nitric Acid
E - NaHSO4
F - MeOH
G - Amchlor
H - Ascorbic Acid
I - Ice
J - DI Water
K - EDTA
L - EDA
M - Hexane
N - None
O - AsNaO2
P - Na2O4S
Q - Na2SO3
R - Na2S2O3
S - H2SO4
T - TSP Dodecahydrate
U - Acetone
V - MCAA
W - pH 4-5
Y - Trizma
Z - other (specify)
Other:

Note: Since laboratory accreditations are subject to change, Eurofins Eaton Analytical, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Eaton Analytical, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Eaton Analytical, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Eaton Analytical, LLC.

Possible Hazard Identification
Unconfirmed
Deliverable Requested: I, II, III, IV, Other (specify)
Primary Deliverable Rank: 2

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* ______ *Months*
Special Instructions/QC Requirements:

Empty Kit Relinquished by:
Date:
Time:
Method of Shipment:

Relinquished by: Gillen Y	Date/Time: 7-13-23 10:29	Company	Received by: fedex	Date/Time:	Company
Relinquished by: fedex	Date/Time:	Company	Received by: Brianna Sharkey - Hazard	Date/Time: 7/14/23	Company ETASTL
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact:
Δ Yes Δ No
Custody Seal No.:
Cooler Temperature(s) °C and Other Remarks:

Ver: 06/08/2021

Appendix F

Total Daily Withdrawals

RMBH-2
Withdrawals (acre-feet/day)

Day	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sept-23	Oct-23
1	NP	NP	NP	NP	NP	NP	0.007	NP	NP	NP	NP	NP
2	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	0.008
3	NP	NP	0.004	NP	NP	NP	NP	NP	0.003	NP	NP	0.024
4	NP	NP	NP	NP	NP	0.00006	NP	NP	NP	NP	NP	0.096
5	NP	0.006	NP	NP	NP	NP	NP	0.006	0.002	NP	0.010	0.121
6	NP	NP	NP	0.006	0.006	NP	NP	0.00006	NP	NP	NP	0.122
7	0.005	NP	NP	NP	NP	0.00006	NP	NP	NP	0.005	NP	0.013
8	NP	NP	NP	NP	NP	NP	0.005	NP	NP	NP	NP	NP
9	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	0.099
10	NP	NP	0.006	NP	NP	0.006	NP	NP	0.007	NP	NP	0.125
11	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	0.006	0.101
12	NP	0.006	NP	NP	NP	NP	NP	0.005	NP	NP	NP	0.136
13	NP	NP	NP	0.006	0.005	NP	NP	0.006	NP	NP	NP	0.154
14	0.006	NP	NP	NP	NP	NP	NP	NP	NP	0.006	NP	0.013
15	NP	NP	NP	NP	NP	NP	0.005	NP	NP	NP	NP	0.040
16	NP	NP	0.003	NP	NP	NP	NP	NP	NP	NP	NP	0.132
17	NP	NP	0.002	NP	NP	0.005	NP	NP	0.004	NP	NP	0.029
18	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	0.004	0.102
19	NP	0.006	NP	NP	NP	NP	NP	NP	NP	NP	NP	0.133
20	NP	NP	NP	NP	0.007	NP	NP	0.004	NP	NP	NP	0.111
21	0.009	NP	NP	0.005	NP	NP	NP	NP	NP	0.005	0.015	0.026
22	NP	NP	NP	NP	NP	NP	0.006	NP	NP	NP	0.033	0.025
23	NP	NP	0.006	NP	NP	NP	NP	NP	NP	NP	NP	0.115
24	NP	NP	NP	NP	NP	0.005	NP	NP	0.006	NP	NP	0.109
25	NP	NP	NP	NP	NP	0.007	NP	NP	NP	NP	0.004	0.150
26	NP	NP	NP	NP	NP	NP	NP	0.005	NP	NP	0.104	0.126
27	NP	0.007	NP	NP	0.005	NP	NP	NP	NP	NP	NP	0.099
28	NP	NP	NP	0.005	NP	0.00006	NP	0.003	NP	0.005	NP	0.003
29	NP	NP	NP		NP	NP	NP	NP	NP	0.002	NP	0.030
30	0.005	NP	0.006		NP	NP	0.006	NP	NP	NP	NP	0.131
31		NP	NP		NP		NP		0.008	NP		0.113

NP = No Pumping. From Nov 1, 2022 to Oct 2, 2023, pumping was for well testing only; Oct 2, 2023 to Oct 31 2023, simultaneous pumping for springwater operations.

RMBH-3
Withdrawals (acre-feet/day)

Day	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sept-23	Oct-23
1	0.372	0.391	0.000	0.367	0.379	0.052	0.404	0.408	0.036	0.203	0.301	0.000
2	0.385	0.374	0.000	0.384	0.400	0.000	0.401	0.265	0.000	0.284	0.220	0.218
3	0.229	0.203	0.342	0.376	0.390	0.375	0.393	0.011	0.326	0.309	0.000	0.221
4	0.325	0.318	0.398	0.060	0.054	0.409	0.457	0.000	0.076	0.303	0.249	0.137
5	0.285	0.122	0.366	0.000	0.000	0.407	0.392	0.322	0.281	0.233	0.304	0.117
6	0.070	0.434	0.345	0.318	0.316	0.444	0.264	0.378	0.382	0.000	0.360	0.120
7	0.408	0.348	0.189	0.308	0.386	0.413	0.099	0.381	0.344	0.265	0.328	0.012
8	0.422	0.417	0.044	0.352	0.302	0.191	0.385	0.268	0.026	0.309	0.290	0.000
9	0.392	0.417	0.177	0.384	0.323	0.000	0.435	0.343	0.000	0.335	0.199	0.097
10	0.414	0.258	0.384	0.397	0.344	0.308	0.375	0.074	0.224	0.327	0.000	0.122
11	0.418	0.050	0.386	0.045	0.100	0.402	0.434	0.000	0.298	0.308	0.219	0.096
12	0.263	0.373	0.416	0.000	0.057	0.449	0.429	0.155	0.288	0.072	0.283	0.133
13	0.025	0.373	0.286	0.421	0.371	0.390	0.209	0.367	0.244	0.025	0.309	0.145
14	0.357	0.409	0.001	0.397	0.400	0.412	0.020	0.333	0.283	0.000	0.273	0.015
15	0.388	0.427	0.000	0.027	0.390	0.050	0.340	0.238	0.065	0.286	0.345	0.039
16	0.381	0.447	0.505	0.412	0.364	0.044	0.414	0.143	0.000	0.318	0.143	0.128
17	0.393	0.074	0.080	0.389	0.143	0.381	0.370	0.270	0.250	0.324	0.000	0.026
18	0.370	0.000	0.009	0.467	0.307	0.402	0.473	0.000	0.298	0.657	0.249	0.102
19	0.000	0.184	0.396	0.186	0.350	0.431	0.410	0.000	0.258	0.031	0.342	0.126
20	0.538	0.365	0.347	0.426	0.343	0.429	0.159	0.358	0.259	0.000	0.288	0.109
21	0.143	0.383	0.042	0.312	0.395	0.380	0.000	0.393	0.247	0.258	0.235	0.000
22	0.387	0.406	0.000	0.091	0.460	0.060	0.280	0.357	0.048	0.313	0.342	0.047
23	0.332	0.655	0.258	0.131	0.436	0.089	0.332	0.025	0.000	0.311	0.199	0.116
24	0.025	0.000	0.331	0.609	0.400	0.391	0.463	0.000	0.276	0.256	0.000	0.128
25	0.219	0.000	0.365	0.031	0.282	0.439	0.418	0.000	0.339	0.264	0.249	0.123
26	0.114	0.112	0.389	0.050	0.025	0.392	0.399	0.000	0.056	0.049	0.187	0.125
27	0.036	0.364	0.337	0.365	0.389	0.418	0.058	0.357	0.149	0.000	0.408	0.098
28	0.401	0.297	0.025	0.379	0.464	0.390	0.033	0.378	0.201	0.259	0.319	0.002
29	0.358	0.441	0.068		0.408	0.161	0.404	0.399	0.047	0.330	0.332	0.031
30	0.383	0.104	0.304		0.403	0.075	0.433	0.360	0.000	0.329	0.167	0.128
31		0.042	0.369		0.417		0.381		0.259	0.301		0.112

Exhibit 4

2023 Summary of Trucking Operations

D. G.
COLEMAN
Inc
COMMERCE CITY, CO.

Bulk Water Transportation Review: Year of 2023

1. Truck Trips

a) Total Load count in 2023: 3587
b) 12% hauled by local drivers
c) # of Days Operated: 309
b) Maximum # of Trucks in any given day: 19
c) Maximum # trips per hour 11:00a-6:00p during Memorial-Labor Days on any given day: 2 trucks
No Violations of the numbers of trips per hour requirement.

2. Drivers (Statistics based on year-end)

a) # of Local Drivers Employed: 2
b) # of Non-local Drivers Employed: 14
c) # of Trips by Local Drivers: 441
d) # of Trips by Non-local Drivers: 3146
e) Documentation as to BTB (Coleman) effort to hire local (e.g., # of ads) – Below:

Chaffee County Recruiting Efforts:

- Advertising for local truck driving positions were posted in the Mountain Mail and a local radio station (Heart of the Rockies)
- Referral bonuses of $1,000 offered for drivers that recruit Chaffee County drivers.
- Relocation assistance offered of up to $5,000 to relocate to Chaffee County.
- Improved health insurance benefits at no cost to the drivers.
- Chaffee drivers worked a total of 9,945 hours, earning $296,768 in 2023, not including benefits ($426,556 including benefits, overtime, and PTO).

Quantity of Qualified Drivers

Two drivers applied for the position. No applicants were qualified, and no drivers were hired after interviews.

Driver Retention Efforts

- Guaranteed minimum 40 hours per week paid for all Chaffee drivers.
- Improved benefit options for the company at no cost to the driver.
- Worked with drivers schedules as much as possible to accommodate and balance their work and personal lives.

3. Tankers and Trucks Used

a) Tractor Type(s) used, including Model, HP, & Emissions Compliance

- All tractors met the sample tractor specifications that were submitted and meet all federal and state requirements.
- Tractor models used in 2023 primarily consist of 2022 Kenworth T880's with 500HP Cummins engine and 2020 Kenworth W990's with 500HP Cummins engine also in the fleet. All tractors are equipped with disc brakes for improved stopping and Electronic Log Devices (ELDs).
- Average fuel economy 6.05 MPG.

DG Coleman 2023 Advertising Expenses Summary

Date	Advertisement	Amount
2/13/2023	Heart of the Rockies	$750.00
5/19/2023	Heart of the Rockies	$750.00
5/31/2023	Mountain Mail	$861.00
6/13/2023	Heart of the Rockies	$750.00
7/10/2023	Heart of the Rockies	$750.00
8/14/2023	Heart of the Rockies	$750.00

2023 Total Advertising Expenses $4,611.00

** copies of invoices and reciepts available upon request*

Exhibit 5

2023 Annual Accounting Report Regarding Well Pumping Operations and Augmentation Releases

Applegate Group, Inc.
Water Resource Advisors for the West

January 30, 2024

Mr. James Culichia Esq.
Felt, Monson & Culichia, LLC
319 N. Weber Street
Colorado Springs, CO 80903

Re: BTB Annual Accounting Report Regarding Well Pumping Operations and Augmentation Releases

Dear Jim:

The following information is being provided to you in response to the condition set forth in Section 4.28(a) of the Chaffee County Resolution No. 2021-58 which granted a permit to conduct an activity of state interest in an area of State Interest (1041 Permit) for Blue Triton Brands, Inc (BTB) formally known as Nestle Waters North America (NWNA). BTB is providing this annual report which shows the daily amount diverted in acre-feet (including the maximum instantaneous rate), the monthly amount diverted in acre-feet, the annual amount diverted, and all augmentation releases.

The total amount pumped from the Ruby Mountain Springs wells in Calendar Year 2023 is shown in **Table 1**. The corresponding lagged depletions and replacement volumes are shown in **Table 2**. The water balance for the entirety of 2022 is included in **Table 3**. In 2023, BTB pumped a total of 79.05 acre-feet from RMBH-3, and 9.23 acre-feet from RMBH-2. Though a portion of this water may have been discharged back to the Arkansas River, it was assumed for accounting purposes that all water pumped was 100% consumed. The diversions were lagged using the Glover method and a total of 89.01 acre-feet of depletions were calculated as reaching the Arkansas River in 2023 as shown in Table 2.

BTB utilized the Upper Arkansas Water Conservancy District (UAWCD) for making replacement of the well depletions summarized above. The replacements from UAWCD were made in the form of releases from Twin Lakes Reservoir. In total, BTB released 101.86 acre-feet of augmentation water from Twin Lakes Reservoir (99.86 acre-feet for depletions and 2.00 acre-feet to cover the transit losses) to offset lagged depletions from both RMBH-2 and RMBH-3. BTB augmentation releases exceeded depletions because releases from Twin Lakes were only adjusted on a weekly basis, and therefore scheduled to exceed any peak demands of lagged depletions. The water balance of replacements less lagged depletions and transit losses totaled 10.85 acre-feet for 2023.

If you have any questions concerning the information that we are providing in this letter report, please feel free to contact me at 303-452-6611 or ajaved@applegategroup.com.

Cordially,
Applegate Group, Inc.

Abdullah

Abdullah Javed
Water Resource Engineer

Enclosures

cc:
Dan Swallow, Development Services Director, Chaffee County
Miles Cottom, Chaffee County (electronic copy)
Christie Barton, Chaffee County (electronic copy)
Tam Pham, BTB (electronic copy)
Steve Sims, Brownstein Hyatt Farber Schreck, LLP (electronic copy)
David Shohet, Monson, Cummins & Shohet, LLC (electronic copy)
AG File No. 06-151

N:\06151 Springs Investigations\Accounting - Chaffee County\Final Accounting Reports\Annual Reports\2024 Annual Reports\Well Pumping Report\2023 Calendar Year Well Pumping Report.doc

Table 1: NWNA Daily Well Diversions

Ruby Mountain Springs RMBH-2 and RMBH-3 Diversions

January *2023*

***Measured data**

Reading from previous month: 33108910

Reading from previous month: 397417100

Day	RMBH-2 Well					RMBH-3 Well					Total Well Diversions
	Diversions from Ruby Mountain Springs RMBH-2, WDID# 1105104			Max Instantaneous Pumping Rates		Diversions from Ruby Mountain Springs RMBH-3, WDID# 1105219			Max Instantaneous Pumping Rates		
	Meter Reading (A)	Volume (GALS) (B)	Volume (AF) (C)	GPM (D)	CFS (E)	Meter Reading (F)	Volume (GALS) (G)	Volume (AF) (H)	GPM (I)	CFS (J)	Volume (AF) (K)
1/1/2023	33108910	0	0.000	0	0.000	397430900	0	0.000	1	0.001	0.000
1/2/2023	33108910	0	0.000	0	0.000	397430900	0	0.000	1	0.001	0.000
1/3/2023	33108910	1,450	0.004	69	0.154	397430900	111,600	0.342	151	0.336	0.347
1/4/2023	33110360	0	0.000	0	0.000	397542500	129,600	0.398	151	0.337	0.398
1/5/2023	33110360	0	0.000	0	0.000	397672100	119,300	0.366	151	0.337	0.366
1/6/2023	33110360	0	0.000	0	0.000	397791400	112,500	0.345	151	0.337	0.345
1/7/2023	33110360	0	0.000	0	0.000	397903900	61,600	0.189	151	0.336	0.189
1/8/2023	33110360	0	0.000	0	0.000	397965500	14,500	0.044	151	0.336	0.044
1/9/2023	33110360	0	0.000	0	0.000	397980000	57,800	0.177	151	0.337	0.177
1/10/2023	33110360	1,890	0.006	69	0.154	398037800	125,100	0.384	151	0.336	0.390
1/11/2023	33112250	0	0.000	0	0.000	398162900	125,700	0.386	151	0.336	0.386
1/12/2023	33112250	0	0.000	0	0.000	398288600	135,600	0.416	151	0.337	0.416
1/13/2023	33112250	0	0.000	0	0.000	398424200	93,100	0.286	151	0.337	0.286
1/14/2023	33112250	0	0.000	0	0.000	398517300	200	0.001	2	0.004	0.001
1/15/2023	33112250	0	0.000	0	0.000	398517500	0	0.000	0	0.000	0.000
1/16/2023	33112250	1,060	0.003	76	0.168	398517500	164,500	0.505	151	0.336	0.508
1/17/2023	33113310	800	0.002	76	0.169	398682000	26,000	0.080	151	0.337	0.082
1/18/2023	33114110	0	0.000	0	0.000	398708000	2,800	0.009	151	0.336	0.009
1/19/2023	33114110	0	0.000	0	0.000	398710800	129,200	0.396	151	0.337	0.396
1/20/2023	33114110	0	0.000	0	0.000	398840000	113,000	0.347	151	0.336	0.347
1/21/2023	33114110	0	0.000	0	0.000	398953000	13,600	0.042	151	0.336	0.042
1/22/2023	33114110	0	0.000	0	0.000	398966600	0	0.000	0	0.001	0.000
1/23/2023	33114110	1,940	0.006	75	0.166	398966600	84,000	0.258	163	0.363	0.264
1/24/2023	33116050	0	0.000	0	0.000	399050600	107,900	0.331	151	0.337	0.331
1/25/2023	33116050	0	0.000	0	0.000	399158500	119,000	0.365	151	0.337	0.365
1/26/2023	33116050	0	0.000	0	0.000	399277500	126,800	0.389	151	0.336	0.389
1/27/2023	33116050	0	0.000	0	0.000	399404300	109,800	0.337	161	0.359	0.337
1/28/2023	33116050	0	0.000	0	0.000	399514100	8,100	0.025	151	0.336	0.025
1/29/2023	33116050	0	0.000	0	0.000	399522200	22,200	0.068	151	0.336	0.068
1/30/2023	33116050	1,880	0.006	78	0.174	399544400	99,200	0.304	151	0.337	0.310
1/31/2023	33117930	0	0.000	0	0.000	399643600	120,300	0.369	151	0.336	0.369
Total	-	**9,020**	**0.028**	-	-	-	**2,333,000**	**7.160**	-	-	**7.187**

Notes:

(A) Actual meter readings taken from RMBH-2

(B) Actual volume pumped in gallons from RMBH-2, Current day's meter reading - previous day's meter reading

(C) Actual volume pumped in acre-feet from RMBH-2, Column (B) / 325851.4

(D) Maximum instantaneous rate in gallons per minute pumped from RMBH-2

(E) Maximum instantaneous rate in cubic feet per second pumped from RMBH-2, Column (D) / (60 * 7.480)

(F) Actual meter readings taken from RMBH-3

(G) Actual volume pumped in gallons from RMBH-3, Current day's meter reading - previous day's meter reading

(H) Actual volume pumped in acre-feet from RMBH-3, Column (G) / 325851.4

(I) Maximum instantaneous rate in gallons per minute pumped from RMBH-3

(J) Maximum instantaneous rate in cubic feet per second pumped from RMBH-3, Column (I) / (60 * 7.480)

(K) Total volume pumped from RMBH-2 and RMBH-3, Column (C) + Column (H)

RMBH-2 Reading from next month:	33117930
RMBH-3 Reading from next month:	399763900

Table 1: NWNA Daily Well Diversions

Ruby Mountain Springs RMBH-2 and RMBH-3 Diversions

February 2023

Applegate Group, Inc.

***Measured data**

Reading from previous month: 33117930

Reading from previous month: 399643600

Day	RMBH-2 Well					RMBH-3 Well					Total Well Diversions
	Diversions from Ruby Mountain Springs RMBH-2, WDID# 1105104			Max Instantaneous Pumping Rates		Diversions from Ruby Mountain Springs RMBH-3, WDID# 1105219			Max Instantaneous Pumping Rates		
	Meter Reading (A)	**Volume (GALS)** (B)	**Volume (AF)** (C)	**GPM** (D)	**CFS** (E)	**Meter Reading** (F)	**Volume (GALS)** (G)	**Volume (AF)** (H)	**GPM** (I)	**CFS** (J)	**Volume (AF)** (K)
2/1/2023	33117930	0	0.000	0	0.000	399763900	119,700	0.367	151	0.337	0.367
2/2/2023	33117930	0	0.000	0	0.000	399883600	125,200	0.384	151	0.337	0.384
2/3/2023	33117930	0	0.000	0	0.000	400008800	122,500	0.376	151	0.337	0.376
2/4/2023	33117930	0	0.000	0	0.000	400131300	19,600	0.060	151	0.336	0.060
2/5/2023	33117930	0	0.000	0	0.000	400150900	0	0.000	1	0.001	0.000
2/6/2023	33117930	1,860	0.006	65	0.145	400150900	103,600	0.318	151	0.336	0.324
2/7/2023	33119790	0	0.000	0	0.000	400254500	100,200	0.308	157	0.351	0.308
2/8/2023	33119790	0	0.000	0	0.000	400354700	114,800	0.352	151	0.337	0.352
2/9/2023	33119790	0	0.000	0	0.000	400469500	125,000	0.384	151	0.337	0.384
2/10/2023	33119790	0	0.000	0	0.000	400594500	129,400	0.397	158	0.352	0.397
2/11/2023	33119790	0	0.000	0	0.000	400723900	14,600	0.045	151	0.337	0.045
2/12/2023	33119790	0	0.000	0	0.000	400738500	0	0.000	0	0.001	0.000
2/13/2023	33119790	1,810	0.006	74	0.166	400738500	137,200	0.421	151	0.337	0.427
2/14/2023	33121600	0	0.000	0	0.000	400875700	129,300	0.397	153	0.340	0.397
2/15/2023	33121600	0	0.000	0	0.000	401005000	8,900	0.027	151	0.335	0.027
2/16/2023	33121600	0	0.000	0	0.000	401013900	134,100	0.412	151	0.337	0.412
2/17/2023	33121600	0	0.000	0	0.000	401148000	126,600	0.389	151	0.336	0.389
2/18/2023	33121600	0	0.000	0	0.000	401274600	152,300	0.467	151	0.336	0.467
2/19/2023	33121600	0	0.000	0	0.000	401426900	60,600	0.186	151	0.337	0.186
2/20/2023	33121600	0	0.000	0	0.000	401487500	138,700	0.426	157	0.349	0.426
2/21/2023	33121600	1,760	0.005	67	0.148	401626200	101,700	0.312	157	0.350	0.318
2/22/2023	33123360	0	0.000	0	0.000	401727900	29,500	0.091	151	0.337	0.091
2/23/2023	33123360	0	0.000	0	0.000	401757400	42,700	0.131	151	0.337	0.131
2/24/2023	33123360	0	0.000	0	0.000	401800100	198,400	0.609	151	0.337	0.609
2/25/2023	33123360	0	0.000	0	0.000	401998500	10,100	0.031	151	0.336	0.031
2/26/2023	33123360	0	0.000	0	0.000	402008600	16,200	0.050	151	0.336	0.050
2/27/2023	33123360	0	0.000	0	0.000	402024800	118,800	0.365	151	0.337	0.365
2/28/2023	33123360	1,560	0.005	60	0.133	402143600	123,400	0.379	151	0.336	0.383
Total	**-**	**6,990**	**0.021**	**-**	**-**	**-**	**2,503,100**	**7.682**	**-**	**-**	**7.703**

Notes:

(A) Actual meter readings taken from RMBH-2

(B) Actual volume pumped in gallons from RMBH-2, Current day's meter reading - previous day's meter reading

(C) Actual volume pumped in acre-feet from RMBH-2, Column (B) / 325851.4

(D) Maximum instantaneous rate in gallons per minute pumped from RMBH-2

(E) Maximum instantaneous rate in cubic feet per second pumped from RMBH-2, Column (D) / (60 * 7.480)

(F) Actual meter readings taken from RMBH-3

(G) Actual volume pumped in gallons from RMBH-3, Current day's meter reading - previous day's meter reading

(H) Actual volume pumped in acre-feet from RMBH-3, Column (G) / 325851.4

(I) Maximum instantaneous rate in gallons per minute pumped from RMBH-3

(J) Maximum instantaneous rate in cubic feet per second pumped from RMBH-3, Column (I) / (60 * 7.480)

(K) Total volume pumped from RMBH-2 and RMBH-3, Column (C) + Column (H)

RMBH-2 Reading from next month:	33124920
RMBH-3 Reading from next month:	402267000

Table 1: NWNA Daily Well Diversions

Ruby Mountain Springs RMBH-2 and RMBH-3 Diversions

March 2023

Applegate Group, Inc.

***Measured data**

Reading from previous month: 33123360

Reading from previous month: 402143600

Day	RMBH-2 Well					RMBH-3 Well					Total Well Diversions
	Diversions from Ruby Mountain Springs RMBH-2, WDID# 1105104			Max Instantaneous Pumping Rates		Diversions from Ruby Mountain Springs RMBH-3, WDID# 1105219			Max Instantaneous Pumping Rates		
	Meter Reading (A)	**Volume (GALS)** (B)	**Volume (AF)** (C)	**GPM** (D)	**CFS** (E)	**Meter Reading** (F)	**Volume (GALS)** (G)	**Volume (AF)** (H)	**GPM** (I)	**CFS** (J)	**Volume (AF)** (K)
3/1/2023	33124920	0	0.000	0	0.000	402267000	123,500	0.379	151	0.337	0.379
3/2/2023	33124920	0	0.000	0	0.000	402390500	130,400	0.400	151	0.337	0.400
3/3/2023	33124920	0	0.000	0	0.000	402520900	127,200	0.390	151	0.337	0.390
3/4/2023	33124920	0	0.000	0	0.000	402648100	17,700	0.054	151	0.336	0.054
3/5/2023	33124920	0	0.000	0	0.000	402665800	0	0.000	1	0.001	0.000
3/6/2023	33124920	1,890	0.006	73	0.163	402665800	102,900	0.316	173	0.384	0.322
3/7/2023	33126810	0	0.000	0	0.000	402768700	125,900	0.386	151	0.337	0.386
3/8/2023	33126810	0	0.000	0	0.000	402894600	98,400	0.302	151	0.336	0.302
3/9/2023	33126810	0	0.000	0	0.000	402993000	105,100	0.323	154	0.343	0.323
3/10/2023	33126810	0	0.000	0	0.000	403098100	112,000	0.344	151	0.337	0.344
3/11/2023	33126810	0	0.000	0	0.000	403210100	32,500	0.100	151	0.336	0.100
3/12/2023	33126810	0	0.000	0	0.000	403242600	18,600	0.057	151	0.336	0.057
3/13/2023	33126810	1,490	0.005	64	0.142	403261200	121,000	0.371	151	0.337	0.376
3/14/2023	33128300	0	0.000	0	0.000	403382200	130,400	0.400	151	0.337	0.400
3/15/2023	33128300	0	0.000	0	0.000	403512600	127,000	0.390	151	0.336	0.390
3/16/2023	33128300	0	0.000	0	0.000	403639600	118,700	0.364	151	0.337	0.364
3/17/2023	33128300	0	0.000	0	0.000	403758300	46,500	0.143	151	0.337	0.143
3/18/2023	33128300	0	0.000	0	0.000	403804800	100,000	0.307	153	0.341	0.307
3/19/2023	33128300	0	0.000	0	0.000	403904800	113,900	0.350	151	0.336	0.350
3/20/2023	33128300	2,130	0.007	64	0.141	404018700	111,700	0.343	151	0.337	0.349
3/21/2023	33130430	0	0.000	0	0.000	404130400	128,600	0.395	152	0.339	0.395
3/22/2023	33130430	0	0.000	0	0.000	404259000	150,000	0.460	151	0.336	0.460
3/23/2023	33130430	0	0.000	0	0.000	404409000	142,200	0.436	158	0.352	0.436
3/24/2023	33130430	0	0.000	0	0.000	404551200	130,400	0.400	151	0.336	0.400
3/25/2023	33130430	0	0.000	0	0.000	404681600	91,900	0.282	151	0.337	0.282
3/26/2023	33130430	0	0.000	0	0.000	404773500	8,100	0.025	151	0.336	0.025
3/27/2023	33130430	1,560	0.005	71	0.158	404781600	126,900	0.389	155	0.345	0.394
3/28/2023	33131990	0	0.000	0	0.000	404908500	151,200	0.464	151	0.337	0.464
3/29/2023	33131990	0	0.000	0	0.000	405059700	132,900	0.408	151	0.337	0.408
3/30/2023	33131990	0	0.000	0	0.000	405192600	131,300	0.403	151	0.336	0.403
3/31/2023	33131990	0	0.000	0	0.000	405323900	135,900	0.417	151	0.337	0.417
Total	-	**7,070**	**0.022**	-	-	-	**3,192,800**	**9.798**	-	-	**9.820**

Notes:

(A) Actual meter readings taken from RMBH-2

(B) Actual volume pumped in gallons from RMBH-2, Current day's meter reading - previous day's meter reading

(C) Actual volume pumped in acre-feet from RMBH-2, Column (B) / 325851.4

(D) Maximum instantaneous rate in gallons per minute pumped from RMBH-2

(E) Maximum instantaneous rate in cubic feet per second pumped from RMBH-2, Column (D) / (60 * 7.480)

(F) Actual meter readings taken from RMBH-3

(G) Actual volume pumped in gallons from RMBH-3, Current day's meter reading - previous day's meter reading

(H) Actual volume pumped in acre-feet from RMBH-3, Column (G) / 325851.4

(I) Maximum instantaneous rate in gallons per minute pumped from RMBH-3

(J) Maximum instantaneous rate in cubic feet per second pumped from RMBH-3, Column (I) / (60 * 7.480)

(K) Total volume pumped from RMBH-2 and RMBH-3, Column (C) + Column (H)

RMBH-2 Reading from next month: 33131990

RMBH-3 Reading from next month: 405459800

Table 1: BTB Daily Well Diversions

Ruby Mountain Springs RMBH-2 and RMBH-3 Diversions

April ***2023***

***Measured data**

Day	RMBH-2 Well					RMBH-3 Well					Total Well Diversions
	Diversions from Ruby Mountain Springs RMBH-2, WDID# 1105104			Max Instantaneous Pumping Rates		Diversions from Ruby Mountain Springs RMBH-3, WDID# 1105219			Max Instantaneous Pumping Rates		
	Meter Reading (A)	**Volume (GALS)** (B)	**Volume (AF)** (C)	**GPM** (D)	**CFS** (E)	**Meter Reading** (F)	**Volume (GALS)** (G)	**Volume (AF)** (H)	**GPM** (I)	**CFS** (J)	**Volume (AF)** (K)
4/1/2023	33131990	0	0.000	0	0.000	405459800	17,000	0.052	154	0.342	0.052
4/2/2023	33131990	0	0.000	0	0.000	405476800	0	0.000	1	0.001	0.000
4/3/2023	33131990	0	0.000	0	0.000	405476800	122,100	0.375	157	0.350	0.375
4/4/2023	33131990	20	0.000	4	0.008	405598900	133,300	0.409	151	0.336	0.409
4/5/2023	33132010	0	0.000	0	0.000	405732200	132,500	0.407	151	0.336	0.407
4/6/2023	33132010	0	0.000	0	0.000	405864700	144,600	0.444	155	0.345	0.444
4/7/2023	33132010	20	0.000	27	0.061	406009300	134,500	0.413	151	0.337	0.413
4/8/2023	33132030	0	0.000	0	0.000	406143800	62,400	0.191	151	0.336	0.191
4/9/2023	33132030	0	0.000	0	0.000	406206200	0	0.000	1	0.001	0.000
4/10/2023	33132030	1,890	0.006	71	0.158	406206200	100,200	0.308	151	0.337	0.313
4/11/2023	33133920	0	0.000	0	0.000	406306400	131,000	0.402	151	0.337	0.402
4/12/2023	33133920	0	0.000	0	0.000	406437400	146,400	0.449	151	0.336	0.449
4/13/2023	33133920	0	0.000	0	0.000	406583800	127,200	0.390	151	0.336	0.390
4/14/2023	33133920	0	0.000	0	0.000	406711000	134,100	0.412	151	0.336	0.412
4/15/2023	33133920	0	0.000	0	0.000	406845100	16,400	0.050	151	0.336	0.050
4/16/2023	33133920	0	0.000	0	0.000	406861500	14,400	0.044	151	0.336	0.044
4/17/2023	33133920	1,510	0.005	72	0.161	406875900	124,200	0.381	151	0.336	0.386
4/18/2023	33135430	0	0.000	0	0.000	407000100	130,900	0.402	151	0.336	0.402
4/19/2023	33135430	0	0.000	0	0.000	407131000	140,500	0.431	151	0.336	0.431
4/20/2023	33135430	0	0.000	0	0.000	407271500	139,800	0.429	151	0.336	0.429
4/21/2023	33135430	0	0.000	0	0.000	407411300	123,700	0.380	154	0.343	0.380
4/22/2023	33135430	0	0.000	0	0.000	407535000	19,500	0.060	151	0.336	0.060
4/23/2023	33135430	0	0.000	0	0.000	407554500	29,000	0.089	151	0.336	0.089
4/24/2023	33135430	1,490	0.005	65	0.144	407583500	127,400	0.391	151	0.336	0.396
4/25/2023	33136920	2,160	0.007	112	0.249	407710900	143,100	0.439	151	0.336	0.446
4/26/2023	33139080	0	0.000	0	0.000	407854000	127,700	0.392	151	0.336	0.392
4/27/2023	33139080	0	0.000	0	0.000	407981700	136,300	0.418	151	0.336	0.418
4/28/2023	33139080	20	0.000	0	0.000	408118000	127,100	0.390	151	0.336	0.390
4/29/2023	33139100	0	0.000	0	0.000	408245100	52,500	0.161	151	0.336	0.161
4/30/2023	33139100	0	0.000	0	0.000	408297600	24,400	0.075	151	0.336	0.075
Total	**-**	**7,110**	**0.022**	**-**	**-**	**-**	**2,862,200**	**8.784**	**-**	**-**	**8.806**

RMBH-2 Reading from next month:	33139100
RMBH-3 Reading from next month:	408322000

Notes:

(A) Actual meter readings taken from RMBH-2

(B) Actual volume pumped in gallons from RMBH-2, Current day's meter reading - previous day's meter reading

(C) Actual volume pumped in acre-feet from RMBH-2, Column (B) / 325851.4

(D) Maximum instantaneous rate in gallons per minute pumped from RMBH-2

(E) Maximum instantaneous rate in cubic feet per second pumped from RMBH-2, Column (D) / (60 * 7.480)

(F) Actual meter readings taken from RMBH-3

(G) Actual volume pumped in gallons from RMBH-3, Current day's meter reading - previous day's meter reading

(H) Actual volume pumped in acre-feet from RMBH-3, Column (G) / 325851.4

(I) Maximum instantaneous rate in gallons per minute pumped from RMBH-3

(J) Maximum instantaneous rate in cubic feet per second pumped from RMBH-3, Column (I) / (60 * 7.480)

(K) Total volume pumped from RMBH-2 and RMBH-3, Column (C) + Column (H)

Table 1: BTB Daily Well Diversions

Ruby Mountain Springs RMBH-2 and RMBH-3 Diversions

May 2023

***Measured data**

Day	RMBH-2 Well					RMBH-3 Well					Total Well Diversions
	Diversions from Ruby Mountain Springs RMBH-2, WDID# 1105104			Max Instantaneous Pumping Rates		Diversions from Ruby Mountain Springs RMBH-3, WDID# 1105219			Max Instantaneous Pumping Rates		
	Meter Reading (A)	Volume (GALS) (B)	Volume (AF) (C)	GPM (D)	CFS (E)	Meter Reading (F)	Volume (GALS) (G)	Volume (AF) (H)	GPM (I)	CFS (J)	Volume (AF) (K)
5/1/2023	33139100	2,180	0.007	80	0.177	408322000	131,800	0.404	151	0.337	0.411
5/2/2023	33141280	0	0.000	0	0.000	408453800	130,600	0.401	151	0.337	0.401
5/3/2023	33141280	0	0.000	0	0.000	408584400	127,900	0.393	151	0.336	0.393
5/4/2023	33141280	0	0.000	0	0.000	408712300	148,900	0.457	151	0.336	0.457
5/5/2023	33141280	0	0.000	0	0.000	408861200	127,700	0.392	151	0.336	0.392
5/6/2023	33141280	0	0.000	0	0.000	408988900	85,900	0.264	158	0.351	0.264
5/7/2023	33141280	0	0.000	0	0.000	409074800	32,400	0.099	151	0.336	0.099
5/8/2023	33141280	1,660	0.005	68	0.151	409107200	125,300	0.385	151	0.336	0.390
5/9/2023	33142940	0	0.000	0	0.000	409232500	141,900	0.435	151	0.337	0.435
5/10/2023	33142940	0	0.000	0	0.000	409374400	122,300	0.375	151	0.336	0.375
5/11/2023	33142940	0	0.000	0	0.000	409496700	141,400	0.434	151	0.336	0.434
5/12/2023	33142940	0	0.000	0	0.000	409638100	139,800	0.429	151	0.336	0.429
5/13/2023	33142940	0	0.000	0	0.000	409777900	68,000	0.209	151	0.336	0.209
5/14/2023	33142940	0	0.000	0	0.000	409845900	6,500	0.020	151	0.336	0.020
5/15/2023	33142940	1,740	0.005	79	0.175	409852400	110,700	0.340	151	0.337	0.345
5/16/2023	33144680	0	0.000	0	0.000	409963100	134,900	0.414	151	0.336	0.414
5/17/2023	33144680	0	0.000	0	0.000	410098000	120,500	0.370	151	0.336	0.370
5/18/2023	33144680	0	0.000	0	0.000	410218500	154,000	0.473	151	0.336	0.473
5/19/2023	33144680	0	0.000	0	0.000	410372500	133,700	0.410	151	0.336	0.410
5/20/2023	33144680	0	0.000	0	0.000	410506200	51,800	0.159	155	0.344	0.159
5/21/2023	33144680	0	0.000	0	0.000	410558000	0	0.000	1	0.002	0.000
5/22/2023	33144680	1,850	0.006	79	0.175	410558000	91,400	0.280	151	0.337	0.286
5/23/2023	33146530	0	0.000	0	0.000	410649400	108,100	0.332	161	0.358	0.332
5/24/2023	33146530	0	0.000	0	0.000	410757500	151,000	0.463	151	0.337	0.463
5/25/2023	33146530	0	0.000	0	0.000	410908500	136,100	0.418	151	0.336	0.418
5/26/2023	33146530	0	0.000	0	0.000	411044600	130,100	0.399	151	0.337	0.399
5/27/2023	33146530	0	0.000	0	0.000	411174700	18,800	0.058	151	0.336	0.058
5/28/2023	33146530	0	0.000	0	0.000	411193500	10,900	0.033	159	0.354	0.033
5/29/2023	33146530	0	0.000	0	0.000	411204400	131,700	0.404	166	0.371	0.404
5/30/2023	33146530	2,000	0.006	78	0.174	411336100	141,000	0.433	151	0.336	0.439
5/31/2023	33148530	0	0.000	0	0.000	411477100	124,300	0.381	151	0.336	0.381
Total	-	**9,430**	**0.029**	-	-	-	**3,279,400**	**10.064**	-	-	**10.093**

RMBH-2 Reading from next month:	33148530
RMBH-3 Reading from next month:	411601400

Notes:

(A) Actual meter readings taken from RMBH-2

(B) Actual volume pumped in gallons from RMBH-2, Current day's meter reading - previous day's meter reading

(C) Actual volume pumped in acre-feet from RMBH-2, Column (B) / 325851.4

(D) Maximum instantaneous rate in gallons per minute pumped from RMBH-2

(E) Maximum instantaneous rate in cubic feet per second pumped from RMBH-2, Column (D) / (60 * 7.480)

(F) Actual meter readings taken from RMBH-3

(G) Actual volume pumped in gallons from RMBH-3, Current day's meter reading - previous day's meter reading

(H) Actual volume pumped in acre-feet from RMBH-3, Column (G) / 325851.4

(I) Maximum instantaneous rate in gallons per minute pumped from RMBH-3

(J) Maximum instantaneous rate in cubic feet per second pumped from RMBH-3, Column (I) / (60 * 7.480)

(K) Total volume pumped from RMBH-2 and RMBH-3, Column (C) + Column (H)

Table 1: BTB Daily Well Diversions

Ruby Mountain Springs RMBH-2 and RMBH-3 Diversions

June 2023

Applegate Group, Inc.

***Measured data**

Day	RMBH-2 Well					RMBH-3 Well					Total Well Diversions
	Diversions from Ruby Mountain Springs RMBH-2, WDID# 1105104			Max Instantaneous Pumping Rates		Diversions from Ruby Mountain Springs RMBH-3, WDID# 1105219			Max Instantaneous Pumping Rates		
	Meter Reading (A)	Volume (GALS) (B)	Volume (AF) (C)	GPM (D)	CFS (E)	Meter Reading (F)	Volume (GALS) (G)	Volume (AF) (H)	GPM (I)	CFS (J)	Volume (AF) (K)
6/1/2023	33148530	0	0.000	0	0.000	411601400	132,800	0.408	151	0.336	0.408
6/2/2023	33148530	0	0.000	0	0.000	411734200	86,300	0.265	151	0.336	0.265
6/3/2023	33148530	0	0.000	0	0.000	411820500	3,500	0.011	151	0.336	0.011
6/4/2023	33148530	0	0.000	0	0.000	411824000	0	0.000	1	0.002	0.000
6/5/2023	33148530	1,840	0.006	79	0.175	411824000	104,900	0.322	151	0.337	0.328
6/6/2023	33150370	20	0.000	10	0.022	411928900	123,200	0.378	151	0.337	0.378
6/7/2023	33150390	0	0.000	0	0.000	412052100	124,000	0.381	155	0.345	0.381
6/8/2023	33150390	0	0.000	0	0.000	412176100	87,400	0.268	151	0.336	0.268
6/9/2023	33150390	0	0.000	0	0.000	412263500	111,700	0.343	151	0.336	0.343
6/10/2023	33150390	0	0.000	0	0.000	412375200	24,200	0.074	153	0.341	0.074
6/11/2023	33150390	0	0.000	0	0.000	412399400	0	0.000	1	0.002	0.000
6/12/2023	33150390	1,690	0.005	79	0.175	412399400	50,400	0.155	151	0.336	0.160
6/13/2023	33152080	1,940	0.006	85	0.189	412449800	119,700	0.367	151	0.337	0.373
6/14/2023	33154020	0	0.000	0	0.000	412569500	108,500	0.333	151	0.336	0.333
6/15/2023	33154020	0	0.000	0	0.000	412678000	77,500	0.238	151	0.337	0.238
6/16/2023	33154020	0	0.000	0	0.000	412755500	46,500	0.143	151	0.337	0.143
6/17/2023	33154020	0	0.000	0	0.000	412802000	88,100	0.270	151	0.335	0.270
6/18/2023	33154020	0	0.000	0	0.000	412890100	0	0.000	1	0.002	0.000
6/19/2023	33154020	0	0.000	0	0.000	412890100	0	0.000	1	0.002	0.000
6/20/2023	33154020	1,270	0.004	90	0.200	412890100	116,600	0.358	151	0.337	0.362
6/21/2023	33155290	0	0.000	0	0.000	413006700	128,100	0.393	151	0.336	0.393
6/22/2023	33155290	0	0.000	0	0.000	413134800	116,400	0.357	151	0.337	0.357
6/23/2023	33155290	0	0.000	0	0.000	413251200	8,100	0.025	151	0.335	0.025
6/24/2023	33155290	0	0.000	0	0.000	413259300	0	0.000	1	0.002	0.000
6/25/2023	33155290	0	0.000	0	0.000	413259300	0	0.000	1	0.002	0.000
6/26/2023	33155290	1,610	0.005	74	0.166	413259300	0	0.000	29	0.065	0.005
6/27/2023	33156900	0	0.000	0	0.000	413259300	116,300	0.357	151	0.336	0.357
6/28/2023	33156900	880	0.003	74	0.165	413375600	123,200	0.378	151	0.336	0.381
6/29/2023	33157780	0	0.000	0	0.000	413498800	130,100	0.399	151	0.336	0.399
6/30/2023	33157780	0	0.000	0	0.000	413628900	117,400	0.360	151	0.337	0.360
Total	**-**	**9,250**	**0.028**	**-**	**-**	**-**	**2,144,900**	**6.582**	**-**	**-**	**6.611**

Notes:

(A) Actual meter readings taken from RMBH-2

(B) Actual volume pumped in gallons from RMBH-2, Current day's meter reading - previous day's meter reading

(C) Actual volume pumped in acre-feet from RMBH-2, Column (B) / 325851.4

(D) Maximum instantaneous rate in gallons per minute pumped from RMBH-2

(E) Maximum instantaneous rate in cubic feet per second pumped from RMBH-2, Column (D) / (60 * 7.480)

(F) Actual meter readings taken from RMBH-3

(G) Actual volume pumped in gallons from RMBH-3, Current day's meter reading - previous day's meter reading

(H) Actual volume pumped in acre-feet from RMBH-3, Column (G) / 325851.4

(I) Maximum instantaneous rate in gallons per minute pumped from RMBH-3

(J) Maximum instantaneous rate in cubic feet per second pumped from RMBH-3, Column (I) / (60 * 7.480)

(K) Total volume pumped from RMBH-2 and RMBH-3, Column (C) + Column (H)

RMBH-2 Reading from next month:	33157780
RMBH-3 Reading from next month:	413746300

Table 1: BTB Daily Well Diversions

Ruby Mountain Springs RMBH-2 and RMBH-3 Diversions

July 2023

Applegate Group, Inc.

***Measured data**

Day	RMBH-2 Well					RMBH-3 Well					Total Well Diversions
	Diversions from Ruby Mountain Springs RMBH-2, WDID# 1105104			Max Instantaneous Pumping Rates		Diversions from Ruby Mountain Springs RMBH-3, WDID# 1105219			Max Instantaneous Pumping Rates		
	Meter Reading (A)	**Volume (GALS)** (B)	**Volume (AF)** (C)	**GPM** (D)	**CFS** (E)	**Meter Reading** (F)	**Volume (GALS)** (G)	**Volume (AF)** (H)	**GPM** (I)	**CFS** (J)	**Volume (AF)** (K)
7/1/2023	33157780	0	0.000	0	0.000	413746300	11,600	0.036	151	0.336	0.036
7/2/2023	33157780	0	0.000	0	0.000	413757900	0	0.000	1	0.002	0.000
7/3/2023	33157780	1,070	0.003	75	0.166	413757900	106,300	0.326	151	0.337	0.330
7/4/2023	33158850	0	0.000	0	0.000	413864200	24,700	0.076	151	0.336	0.076
7/5/2023	33158850	650	0.002	75	0.167	413888900	91,700	0.281	151	0.336	0.283
7/6/2023	33159500	0	0.000	0	0.000	413980600	124,400	0.382	151	0.336	0.382
7/7/2023	33159500	0	0.000	0	0.000	414105000	112,000	0.344	151	0.336	0.344
7/8/2023	33159500	0	0.000	0	0.000	414217000	8,600	0.026	151	0.336	0.026
7/9/2023	33159500	0	0.000	0	0.000	414225600	0	0.000	1	0.002	0.000
7/10/2023	33159500	2,300	0.007	76	0.170	414225600	72,900	0.224	151	0.336	0.231
7/11/2023	33161800	0	0.000	0	0.000	414298500	97,200	0.298	151	0.336	0.298
7/12/2023	33161800	0	0.000	0	0.000	414395700	93,800	0.288	151	0.336	0.288
7/13/2023	33161800	0	0.000	0	0.000	414489500	79,400	0.244	155	0.344	0.244
7/14/2023	33161800	0	0.000	0	0.000	414568900	92,200	0.283	151	0.336	0.283
7/15/2023	33161800	0	0.000	0	0.000	414661100	21,200	0.065	151	0.336	0.065
7/16/2023	33161800	0	0.000	0	0.000	414682300	0	0.000	1	0.003	0.000
7/17/2023	33161800	1,310	0.004	78	0.174	414682300	81,600	0.250	151	0.337	0.254
7/18/2023	33163110	0	0.000	0	0.000	414763900	97,200	0.298	151	0.336	0.298
7/19/2023	33163110	0	0.000	0	0.000	414861100	84,100	0.258	151	0.337	0.258
7/20/2023	33163110	0	0.000	0	0.000	414945200	84,500	0.259	154	0.344	0.259
7/21/2023	33163110	0	0.000	0	0.000	415029700	80,600	0.247	151	0.336	0.247
7/22/2023	33163110	0	0.000	0	0.000	415110300	15,800	0.048	151	0.336	0.048
7/23/2023	33163110	0	0.000	0	0.000	415126100	0	0.000	1	0.002	0.000
7/24/2023	33163110	1,890	0.006	80	0.179	415126100	90,000	0.276	151	0.337	0.282
7/25/2023	33165000	0	0.000	0	0.000	415216100	110,500	0.339	160	0.357	0.339
7/26/2023	33165000	0	0.000	0	0.000	415326600	18,200	0.056	151	0.336	0.056
7/27/2023	33165000	0	0.000	0	0.000	415344800	48,600	0.149	151	0.336	0.149
7/28/2023	33165000	0	0.000	0	0.000	415393400	65,600	0.201	151	0.337	0.201
7/29/2023	33165000	0	0.000	0	0.000	415459000	15,300	0.047	151	0.336	0.047
7/30/2023	33165000	0	0.000	0	0.000	415474300	0	0.000	1	0.002	0.000
7/31/2023	33165000	2,500	0.008	82	0.183	415474300	84,400	0.259	151	0.336	0.267
Total	-	**9,720**	**0.030**	-	-	-	**1,812,400**	**5.562**	-	-	**5.592**

RMBH-2 Reading from next month:	33167500
RMBH-3 Reading from next month:	415558700

Notes:

(A) Actual meter readings taken from RMBH-2

(B) Actual volume pumped in gallons from RMBH-2, Current day's meter reading - previous day's meter reading

(C) Actual volume pumped in acre-feet from RMBH-2, Column (B) / 325851.4

(D) Maximum instantaneous rate in gallons per minute pumped from RMBH-2

(E) Maximum instantaneous rate in cubic feet per second pumped from RMBH-2, Column (D) / (60 * 7.480)

(F) Actual meter readings taken from RMBH-3

(G) Actual volume pumped in gallons from RMBH-3, Current day's meter reading - previous day's meter reading

(H) Actual volume pumped in acre-feet from RMBH-3, Column (G) / 325851.4

(I) Maximum instantaneous rate in gallons per minute pumped from RMBH-3

(J) Maximum instantaneous rate in cubic feet per second pumped from RMBH-3, Column (I) / (60 * 7.480)

(K) Total volume pumped from RMBH-2 and RMBH-3, Column (C) + Column (H)

Table 1: BTB Daily Well Diversions

Ruby Mountain Springs RMBH-2 and RMBH-3 Diversions

August 2023

Measured data

Day	RMBH-2 Well					RMBH-3 Well					Total Well Diversions
	Diversions from Ruby Mountain Springs RMBH-2, WDID# 1105104			Max Instantaneous Pumping Rates		Diversions from Ruby Mountain Springs RMBH-3, WDID# 1105219			Max Instantaneous Pumping Rates		
	Meter Reading (A)	Volume (GALS) (B)	Volume (AF) (C)	GPM (D)	CFS (E)	Meter Reading (F)	Volume (GALS) (G)	Volume (AF) (H)	GPM (I)	CFS (J)	Volume (AF) (K)
8/1/2023	33167500	0	0.000	0	0.000	415558700	66,200	0.203	151	0.337	0.203
8/2/2023	33167500	0	0.000	0	0.000	415624900	92,500	0.284	151	0.336	0.284
8/3/2023	33167500	0	0.000	0	0.000	415717400	100,800	0.309	151	0.337	0.309
8/4/2023	33167500	0	0.000	0	0.000	415818200	98,700	0.303	151	0.336	0.303
8/5/2023	33167500	0	0.000	0	0.000	415916900	75,800	0.233	151	0.336	0.233
8/6/2023	33167500	0	0.000	0	0.000	415992700	0	0.000	1	0.002	0.000
8/7/2023	33167500	1,770	0.005	84	0.187	415992700	86,300	0.265	151	0.336	0.270
8/8/2023	33169270	0	0.000	0	0.000	416079000	100,800	0.309	151	0.336	0.309
8/9/2023	33169270	0	0.000	0	0.000	416179800	109,300	0.335	151	0.336	0.335
8/10/2023	33169270	0	0.000	0	0.000	416289100	106,500	0.327	151	0.336	0.327
8/11/2023	33169270	0	0.000	0	0.000	416395600	100,200	0.308	151	0.336	0.308
8/12/2023	33169270	0	0.000	0	0.000	416495800	23,400	0.072	151	0.336	0.072
8/13/2023	33169270	0	0.000	0	0.000	416519200	8,200	0.025	151	0.336	0.025
8/14/2023	33169270	1,800	0.006	85	0.189	416527400	0	0.000	151	0.336	0.006
8/15/2023	33171070	0	0.000	0	0.000	416527400	93,100	0.286	151	0.336	0.286
8/16/2023	33171070	0	0.000	0	0.000	416620500	103,600	0.318	151	0.336	0.318
8/17/2023	33171070	0	0.000	0	0.000	416724100	105,600	0.324	151	0.337	0.324
8/18/2023	33171070	0	0.000	0	0.000	416829700	214,100	0.657	151	0.336	0.657
8/19/2023	33171070	0	0.000	0	0.000	417043800	10,100	0.031	151	0.335	0.031
8/20/2023	33171070	0	0.000	0	0.000	417053900	0	0.000	1	0.002	0.000
8/21/2023	33171070	1,690	0.005	86	0.192	417053900	84,100	0.258	162	0.361	0.263
8/22/2023	33172760	0	0.000	0	0.000	417138000	102,100	0.313	151	0.337	0.313
8/23/2023	33172760	0	0.000	0	0.000	417240100	101,300	0.311	151	0.336	0.311
8/24/2023	33172760	0	0.000	0	0.000	417341400	83,400	0.256	151	0.337	0.256
8/25/2023	33172760	0	0.000	0	0.000	417424800	86,000	0.264	151	0.336	0.264
8/26/2023	33172760	0	0.000	0	0.000	417510800	16,100	0.049	151	0.336	0.049
8/27/2023	33172760	0	0.000	0	0.000	417526900	0	0.000	1	0.002	0.000
8/28/2023	33172760	1,660	0.005	87	0.193	417526900	84,300	0.259	151	0.336	0.264
8/29/2023	33174420	700	0.002	87	0.193	417611200	107,400	0.330	151	0.336	0.332
8/30/2023	33175120	0	0.000	0	0.000	417718600	107,300	0.329	151	0.336	0.329
8/31/2023	33175120	0	0.000	0	0.000	417825900	98,000	0.301	151	0.336	0.301
Total	-	**7,620**	**0.023**	-	-	-	**2,365,200**	**7.259**	-	-	**7.282**

Notes:

(A) Actual meter readings taken from RMBH-2

(B) Actual volume pumped in gallons from RMBH-2, Current day's meter reading - previous day's meter reading

(C) Actual volume pumped in acre-feet from RMBH-2, Column (B) / 325851.4

(D) Maximum instantaneous rate in gallons per minute pumped from RMBH-2

(E) Maximum instantaneous rate in cubic feet per second pumped from RMBH-2, Column (D) / (60 * 7.480)

(F) Actual meter readings taken from RMBH-3

(G) Actual volume pumped in gallons from RMBH-3, Current day's meter reading - previous day's meter reading

(H) Actual volume pumped in acre-feet from RMBH-3, Column (G) / 325851.4

(I) Maximum instantaneous rate in gallons per minute pumped from RMBH-3

(J) Maximum instantaneous rate in cubic feet per second pumped from RMBH-3, Column (I) / (60 * 7.480)

(K) Total volume pumped from RMBH-2 and RMBH-3, Column (C) + Column (H)

RMBH-2 Reading from next month:	33175120
RMBH-3 Reading from next month:	417923900

Table 1: BTB Daily Well Diversions

Ruby Mountain Springs RMBH-2 and RMBH-3 Diversions

September 2023

***Measured data**

Day	RMBH-2 Well					RMBH-3 Well					Total Well Diversions
	Diversions from Ruby Mountain Springs RMBH-2, WDID# 1105104			Max Instantaneous Pumping Rates		Diversions from Ruby Mountain Springs RMBH-3, WDID# 1105219			Max Instantaneous Pumping Rates		
	Meter Reading (A)	Volume (GALS) (B)	Volume (AF) (C)	GPM (D)	CFS (E)	Meter Reading (F)	Volume (GALS) (G)	Volume (AF) (H)	GPM (I)	CFS (J)	Volume (AF) (K)
9/1/2023	33175120	0	0.000	0	0.000	417923900	98,200	0.301	151	0.336	0.301
9/2/2023	33175120	0	0.000	0	0.000	418022100	71,800	0.220	151	0.336	0.220
9/3/2023	33175120	0	0.000	0	0.000	418093900	0	0.000	1	0.002	0.000
9/4/2023	33175120	0	0.000	0	0.000	418093900	81,000	0.249	160	0.356	0.249
9/5/2023	33175120	3,360	0.010	87	0.194	418174900	99,100	0.304	151	0.336	0.314
9/6/2023	33178480	0	0.000	0	0.000	418274000	117,400	0.360	151	0.336	0.360
9/7/2023	33178480	0	0.000	0	0.000	418391400	106,900	0.328	0	0.000	0.328
9/8/2023	33178480	0	0.000		0.000	418498300	94,600	0.290		0.000	0.290
9/9/2023	33178480	0	0.000		0.000	418592900	64,800	0.199		0.000	0.199
9/10/2023	33178480	0	0.000		0.000	418657700	0	0.000		0.000	0.000
9/11/2023	33178480	1,820	0.006		0.000	418657700	71,300	0.219		0.000	0.224
9/12/2023	33180300	0	0.000		0.000	418729000	92,100	0.283		0.000	0.283
9/13/2023	33180300	0	0.000		0.000	418821100	100,800	0.309		0.000	0.309
9/14/2023	33180300	0	0.000		0.000	418921900	88,900	0.273		0.000	0.273
9/15/2023	33180300	0	0.000		0.000	419010800	112,500	0.345		0.000	0.345
9/16/2023	33180300	0	0.000		0.000	419123300	46,700	0.143		0.000	0.143
9/17/2023	33180300	0	0.000		0.000	419170000	0	0.000		0.000	0.000
9/18/2023	33180300	1,370	0.004		0.000	419170000	81,000	0.249		0.000	0.253
9/19/2023	33181670	0	0.000		0.000	419251000	111,300	0.342		0.000	0.342
9/20/2023	33181670	0	0.000	0	0.000	419362300	93,800	0.288	161	0.359	0.288
9/21/2023	33181670	5,050	0.015	140	0.311	419456100	76,600	0.235	201	0.449	0.251
9/22/2023	33186720	10,660	0.033	84	0.186	419532700	111,500	0.342	151	0.336	0.375
9/23/2023	33197380	0	0.000	0	0.000	419644200	64,800	0.199	151	0.336	0.199
9/24/2023	33197380	0	0.000	0	0.000	419709000	0	0.000	1	0.002	0.000
9/25/2023	33197380	1,380	0.004	84	0.186	419709000	81,000	0.249	162	0.360	0.253
9/26/2023	33198760	33,980	0.104	84	0.186	419790000	61,000	0.187	158	0.351	0.291
9/27/2023	33232740	0	0.000	0	0.000	419851000	133,100	0.408	152	0.339	0.408
9/28/2023	33232740	0	0.000	0	0.000	419984100	103,900	0.319	151	0.336	0.319
9/29/2023	33232740	0	0.000	0	0.000	420088000	108,200	0.332	152	0.338	0.332
9/30/2023	33232740	0	0.000	0	0.000	420196200	54,300	0.167	152	0.338	0.167
Total	-	**57,620**	**0.177**	-	-	-	**2,326,600**	**7.140**	-	-	**7.317**

Notes:

(A) Actual meter readings taken from RMBH-2

(B) Actual volume pumped in gallons from RMBH-2, Current day's meter reading - previous day's meter reading

(C) Actual volume pumped in acre-feet from RMBH-2, Column (B) / 325851.4

(D) Maximum instantaneous rate in gallons per minute pumped from RMBH-2

(E) Maximum instantaneous rate in cubic feet per second pumped from RMBH-2, Column (D) / (60 * 7.480)

(F) Actual meter readings taken from RMBH-3

(G) Actual volume pumped in gallons from RMBH-3, Current day's meter reading - previous day's meter reading

(H) Actual volume pumped in acre-feet from RMBH-3, Column (G) / 325851.4

(I) Maximum instantaneous rate in gallons per minute pumped from RMBH-3

(J) Maximum instantaneous rate in cubic feet per second pumped from RMBH-3, Column (I) / (60 * 7.480)

(K) Total volume pumped from RMBH-2 and RMBH-3, Column (C) + Column (H)

RMBH-2 Reading from next month:	33232740
RMBH-3 Reading from next month:	420250500

Table 1: BTB Daily Well Diversions

Ruby Mountain Springs RMBH-2 and RMBH-3 Diversions

October 2023

****Measured data***

Day	RMBH-2 Well					RMBH-3 Well					Total Well Diversions
	Diversions from Ruby Mountain Springs RMBH-2, WDID# 1105104			Max Instantaneous Pumping Rates		Diversions from Ruby Mountain Springs RMBH-3, WDID# 1105219			Max Instantaneous Pumping Rates		
	Meter Reading (A)	Volume (GALS) (B)	Volume (AF) (C)	GPM (D)	CFS (E)	Meter Reading (F)	Volume (GALS) (G)	Volume (AF) (H)	GPM (I)	CFS (J)	Volume (AF) (K)
10/1/2023	33232740	0	0.000	0	0.000	420250500	0	0.000	1	0.002	0.000
10/2/2023	33232740	2,590	0.008	84	0.187	420250500	71,000	0.218	151	0.336	0.226
10/3/2023	33235330	7,800	0.024	88	0.196	420321500	72,100	0.221	162	0.360	0.245
10/4/2023	33243130	31,340	0.096	112	0.248	420393600	44,700	0.137	101	0.224	0.233
10/5/2023	33274470	39,300	0.121	107	0.237	420438300	38,100	0.117	84	0.186	0.238
10/6/2023	33313770	39,650	0.122	86	0.193	420476400	39,100	0.120	79	0.176	0.242
10/7/2023	33353420	4,080	0.013	120	0.268	420515500	4,000	0.012	82	0.183	0.025
10/8/2023	33357500	0	0.000	0	0.000	420519500	0	0.000	1	0.002	0.000
10/9/2023	33357500	32,220	0.099	128	0.285	420519500	31,600	0.097	79	0.177	0.196
10/10/2023	33389720	40,870	0.125	131	0.291	420551100	39,900	0.122	80	0.179	0.248
10/11/2023	33430590	32,990	0.101	77	0.172	420591000	31,300	0.096	78	0.174	0.197
10/12/2023	33463580	44,440	0.136	90	0.200	420622300	43,300	0.133	100	0.223	0.269
10/13/2023	33508020	50,310	0.154	132	0.295	420665600	47,400	0.145	79	0.176	0.300
10/14/2023	33558330	4,100	0.013	119	0.266	420713000	4,900	0.015	78	0.173	0.028
10/15/2023	33562430	12,930	0.040	102	0.226	420717900	12,700	0.039	78	0.174	0.079
10/16/2023	33575360	42,910	0.132	89	0.198	420730600	41,700	0.128	90	0.199	0.260
10/17/2023	33618270	9,490	0.029	77	0.170	420772300	8,600	0.026	77	0.172	0.056
10/18/2023	33627760	33,240	0.102	117	0.260	420780900	33,200	0.102	106	0.235	0.204
10/19/2023	33661000	43,370	0.133	118	0.262	420814100	41,000	0.126	79	0.176	0.259
10/20/2023	33704370	36,240	0.111	96	0.213	420855100	35,500	0.109	80	0.177	0.220
10/21/2023	33740610	8,340	0.026	0	0.000	420890600	0	0.000	0	0.000	0.026
10/22/2023	33748950	8,200	0.025	0	0.000	420890600	15,400	0.047	0	0.000	0.072
10/23/2023	33757150	37,390	0.115	133	0.296	420906000	37,900	0.116	79	0.175	0.231
10/24/2023	33794540	35,500	0.109	85	0.189	420943900	41,800	0.128	79	0.175	0.237
10/25/2023	33830040	48,800	0.150	117	0.260	420985700	40,100	0.123	81	0.180	0.273
10/26/2023	33878840	41,160	0.126	90	0.201	421025800	40,800	0.125	97	0.215	0.252
10/27/2023	33920000	32,100	0.099	74	0.166	421066600	31,800	0.098	76	0.169	0.196
10/28/2023	33952100	980	0.003	0	0.000	421098400	800	0.002	0	0.000	0.005
10/29/2023	33953080	9,910	0.030	75	0.168	421099200	10,100	0.031	75	0.167	0.061
10/30/2023	33962990	42,840	0.131	76	0.168	421109300	41,600	0.128	74	0.166	0.259
10/31/2023	34005830	36,800	0.113	74	0.165	421150900	36,400	0.112	76	0.168	0.225
Total	-	**809,890**	**2.485**	-	-	-	**936,800**	**2.875**	-	-	**5.360**

Notes:

(A) Actual meter readings taken from RMBH-2

(B) Actual volume pumped in gallons from RMBH-2, Current day's meter reading - previous day's meter reading

(C) Actual volume pumped in acre-feet from RMBH-2, Column (B) / 325851.4

(D) Maximum instantaneous rate in gallons per minute pumped from RMBH-2

(E) Maximum instantaneous rate in cubic feet per second pumped from RMBH-2, Column (D) / (60 * 7.480)

(F) Actual meter readings taken from RMBH-3

(G) Actual volume pumped in gallons from RMBH-3, Current day's meter reading - previous day's meter reading

(H) Actual volume pumped in acre-feet from RMBH-3, Column (G) / 325851.4

(I) Maximum instantaneous rate in gallons per minute pumped from RMBH-3

(J) Maximum instantaneous rate in cubic feet per second pumped from RMBH-3, Column (I) / (60 * 7.480)

(K) Total volume pumped from RMBH-2 and RMBH-3, Column (C) + Column (H)

RMBH-2 Reading from next month:	34042630
RMBH-3 Reading from next month:	421187300

Table 1: BTB Daily Well Diversions

Ruby Mountain Springs RMBH-2 and RMBH-3 Diversions

November 2023

Applegate Group, Inc.

***Measured data**

Day	RMBH-2 Well					RMBH-3 Well					Total Well Diversions
	Diversions from Ruby Mountain Springs RMBH-2, WDID# 1105104			Max Instantaneous Pumping Rates		Diversions from Ruby Mountain Springs RMBH-3, WDID# 1105219			Max Instantaneous Pumping Rates		
	Meter Reading (A)	Volume (GALS) (B)	Volume (AF) (C)	GPM (D)	CFS (E)	Meter Reading (F)	Volume (GALS) (G)	Volume (AF) (H)	GPM (I)	CFS (J)	Volume (AF) (K)
11/1/2023	34042630	43,690	0.134	81	0.180	421187300	42,100	0.129	88	0.196	0.263
11/2/2023	34086320	48,200	0.148	85	0.190	421229400	46,200	0.142	79	0.175	0.290
11/3/2023	34134520	10,790	0.033	80	0.178	421275600	10,400	0.032	77	0.172	0.065
11/4/2023	34145310	0	0.000	0	0.000	421286000	0	0.000	1	0.001	0.000
11/5/2023	34145310	11,880	0.036	91	0.203	421286000	11,400	0.035	85	0.189	0.071
11/6/2023	34157190	37,180	0.114	131	0.292	421297400	35,600	0.109	92	0.204	0.223
11/7/2023	34194370	41,170	0.126	96	0.214	421333000	40,000	0.123	80	0.178	0.249
11/8/2023	34235540	46,920	0.144	84	0.186	421373000	44,700	0.137	78	0.174	0.281
11/9/2023	34282460	51,900	0.159	90	0.200	421417700	49,600	0.152	79	0.177	0.311
11/10/2023	34334360	40,040	0.123	80	0.177	421467300	38,400	0.118	79	0.175	0.241
11/11/2023	34374400	14,560	0.045	76	0.170	421505700	13,300	0.041	78	0.174	0.085
11/12/2023	34388960	16,500	0.051	82	0.182	421519000	16,200	0.050	95	0.212	0.100
11/13/2023	34405460	44,760	0.137	87	0.194	421535200	42,900	0.132	79	0.175	0.269
11/14/2023	34450220	52,300	0.161	93	0.207	421578100	50,200	0.154	105	0.235	0.315
11/15/2023	34502520	43,440	0.133	121	0.270	421628300	42,800	0.131	104	0.231	0.265
11/16/2023	34545960	45,200	0.139	129	0.288	421671100	44,200	0.136	79	0.176	0.274
11/17/2023	34591160	47,620	0.146	133	0.296	421715300	53,300	0.164	100	0.222	0.310
11/18/2023	34638780	16,350	0.050	77	0.173	421768600	7,400	0.023	82	0.183	0.073
11/19/2023	34655130	12,350	0.038	77	0.171	421776000	4,900	0.015	78	0.173	0.053
11/20/2023	34667480	44,720	0.137	94	0.209	421780900	51,100	0.157	78	0.174	0.294
11/21/2023	34712200	51,760	0.159	110	0.246	421832000	50,100	0.154	105	0.234	0.313
11/22/2023	34763960	50,090	0.154	131	0.293	421882100	48,400	0.149	104	0.231	0.302
11/23/2023	34814050	4,090	0.013	129	0.286	421930500	3,800	0.012	78	0.173	0.024
11/24/2023	34818140	16,530	0.051	123	0.275	421934300	16,000	0.049	98	0.218	0.100
11/25/2023	34834670	4,080	0.013	79	0.176	421950300	4,100	0.013	77	0.172	0.025
11/26/2023	34838750	15,240	0.047	78	0.174	421954400	14,500	0.044	79	0.176	0.091
11/27/2023	34853990	45,210	0.139	84	0.188	421968900	43,800	0.134	103	0.229	0.273
11/28/2023	34899200	44,640	0.137	96	0.214	422012700	43,200	0.133	79	0.176	0.270
11/29/2023	34943840	50,720	0.156	88	0.195	422055900	48,800	0.150	100	0.222	0.305
11/30/2023	34994560	50,850	0.156	74	0.164	422104700	48,800	0.150	77	0.172	0.306
Total	**-**	**1,002,780**	**3.077**	**-**	**-**	**-**	**966,200**	**2.965**	**-**	**-**	**6.043**

Notes:

(A) Actual meter readings taken from RMBH-2

(B) Actual volume pumped in gallons from RMBH-2, Current day's meter reading - previous day's meter reading

(C) Actual volume pumped in acre-feet from RMBH-2, Column (B) / 325851.4

(D) Maximum instantaneous rate in gallons per minute pumped from RMBH-2

(E) Maximum instantaneous rate in cubic feet per second pumped from RMBH-2, Column (D) / (60 * 7.480)

(F) Actual meter readings taken from RMBH-3

(G) Actual volume pumped in gallons from RMBH-3, Current day's meter reading - previous day's meter reading

(H) Actual volume pumped in acre-feet from RMBH-3, Column (G) / 325851.4

(I) Maximum instantaneous rate in gallons per minute pumped from RMBH-3

(J) Maximum instantaneous rate in cubic feet per second pumped from RMBH-3, Column (I) / (60 * 7.480)

(K) Total volume pumped from RMBH-2 and RMBH-3, Column (C) + Column (H)

RMBH-2 Reading from next month:	35045410
RMBH-3 Reading from next month:	422153500

Table 1: BTB Daily Well Diversions

Ruby Mountain Springs RMBH-2 and RMBH-3 Diversions

December 2023

****Measured data***

Day	RMBH-2 Well					RMBH-3 Well					Total Well Diversions
	Diversions from Ruby Mountain Springs RMBH-2, WDID# 1105104			Max Instantaneous Pumping Rates		Diversions from Ruby Mountain Springs RMBH-3, WDID# 1105219			Max Instantaneous Pumping Rates		
	Meter Reading (A)	**Volume (GALS)** (B)	**Volume (AF)** (C)	**GPM** (D)	**CFS** (E)	**Meter Reading** (F)	**Volume (GALS)** (G)	**Volume (AF)** (H)	**GPM** (I)	**CFS** (J)	**Volume (AF)** (K)
12/1/2023	35045410	49,150	0.151	112	0.250	422153500	47,100	0.145	80	0.178	0.295
12/2/2023	35094560	4,650	0.014	77	0.173	422200600	4,200	0.013	78	0.174	0.027
12/3/2023	35099210	16,520	0.051	96	0.213	422204800	15,200	0.047	97	0.217	0.097
12/4/2023	35115730	46,450	0.143	95	0.211	422220000	45,400	0.139	82	0.183	0.282
12/5/2023	35162180	50,240	0.154	107	0.238	422265400	48,300	0.148	82	0.182	0.302
12/6/2023	35212420	48,420	0.149	133	0.296	422313700	55,000	0.169	98	0.219	0.317
12/7/2023	35260840	44,920	0.138	83	0.185	422368700	35,200	0.108	79	0.176	0.246
12/8/2023	35305760	44,240	0.136	79	0.176	422403900	41,500	0.127	79	0.175	0.263
12/9/2023	35350000	4,100	0.013	77	0.172	422445400	4,100	0.013	77	0.172	0.025
12/10/2023	35354100	15,320	0.047	126	0.281	422449500	15,000	0.046	105	0.233	0.093
12/11/2023	35369420	46,890	0.144	93	0.207	422464500	45,300	0.139	80	0.179	0.283
12/12/2023	35416310	55,810	0.171	84	0.186	422509800	52,800	0.162	78	0.174	0.333
12/13/2023	35472120	27,260	0.084	132	0.294	422562600	26,400	0.081	79	0.175	0.165
12/14/2023	35499380	32,320	0.099	93	0.207	422589000	39,500	0.121	106	0.236	0.220
12/15/2023	35531700	47,430	0.146	81	0.181	422628500	37,100	0.114	81	0.181	0.259
12/16/2023	35579130	6,760	0.021	77	0.172	422665600	6,100	0.019	77	0.172	0.039
12/17/2023	35585890	15,670	0.048	78	0.173	422671700	16,100	0.049	93	0.207	0.097
12/18/2023	35601560	43,840	0.135	124	0.276	422687800	41,700	0.128	103	0.230	0.263
12/19/2023	35645400	48,690	0.149	96	0.214	422729500	47,300	0.145	81	0.181	0.295
12/20/2023	35694090	52,010	0.160	129	0.288	422776800	50,000	0.153	94	0.210	0.313
12/21/2023	35746100	45,110	0.138	95	0.211	422826800	43,300	0.133	78	0.173	0.271
12/22/2023	35791210	49,800	0.153	95	0.211	422870100	48,500	0.149	81	0.181	0.302
12/23/2023	35841010	3,070	0.009	77	0.172	422918600	2,800	0.009	77	0.172	0.018
12/24/2023	35844080	0	0.000	0	0.000	422921400	0	0.000	1	0.002	0.000
12/25/2023	35844080	0	0.000	0	0.000	422921400	0	0.000	1	0.001	0.000
12/26/2023	35844080	45,660	0.140	82	0.182	422921400	43,800	0.134	83	0.185	0.275
12/27/2023	35889740	49,940	0.153	101	0.226	422965200	48,000	0.147	80	0.179	0.301
12/28/2023	35939680	66,390	0.204	83	0.185	423013200	61,900	0.190	79	0.175	0.394
12/29/2023	36006070	58,570	0.180	128	0.285	423075100	63,000	0.193	104	0.232	0.373
12/30/2023	36064640	44,410	0.136	0	0.000	423138100	34,100	0.105	0	0.000	0.241
12/31/2023	36109050	8,180	0.025		0.000	423172200	16,200	0.050		0.000	0.075
Total	-	**1,071,820**	**3.289**	-	-	-	**1,034,900**	**3.176**	-	-	**6.465**

Notes:

(A) Actual meter readings taken from RMBH-2

(B) Actual volume pumped in gallons from RMBH-2, Current day's meter reading - previous day's meter reading

(C) Actual volume pumped in acre-feet from RMBH-2, Column (B) / 325851.4

(D) Maximum instantaneous rate in gallons per minute pumped from RMBH-2

(E) Maximum instantaneous rate in cubic feet per second pumped from RMBH-2, Column (D) / (60 * 7.480)

(F) Actual meter readings taken from RMBH-3

(G) Actual volume pumped in gallons from RMBH-3, Current day's meter reading - previous day's meter reading

(H) Actual volume pumped in acre-feet from RMBH-3, Column (G) / 325851.4

(I) Maximum instantaneous rate in gallons per minute pumped from RMBH-3

(J) Maximum instantaneous rate in cubic feet per second pumped from RMBH-3, Column (I) / (60 * 7.480)

(K) Total volume pumped from RMBH-2 and RMBH-3, Column (C) + Column (H)

RMBH-2 Reading from next month:	36117230
RMBH-3 Reading from next month:	423188400

Table 2: NWNA Daily Depletions & Augmentation Releases

Ruby Mountain Springs RMBH-2 and RMBH-3 Monthly Water Balance

January-23

Applegate Group, Inc.

Measured data

Day	Total Lagged Depletions from RMBH-2 and RMBH-3 Wells		Daily Depletion Rates		Days of Free River at RMBH-2 and RMBH-3 Well Sites	Required Replacements for Lagged Depletions after Free River Days	Replacement Water Released by UAWCD		Replacement Water Transit Losses to Well Sites	Net Deficit (-) /Credit (+) to Arkansas River
	Volume (AF)	**Volume (GALS)**	**GPM**	**CFS**		**(AF)**	**Rate (CFS)**	**Volume (AF)**	**(AF)**	**(AF)**
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)
1/1/2023	0.250	81,463	56.6	0.126	-	0.250	0.160	0.318	0.0062	0.1
1/2/2023	0.210	68,429	47.5	0.106	-	0.210	0.160	0.318	0.0062	0.1
1/3/2023	0.180	58,653	40.7	0.091	-	0.180	0.160	0.318	0.0062	0.1
1/4/2023	0.180	58,653	40.7	0.091	-	0.180	0.160	0.318	0.0062	0.1
1/5/2023	0.200	65,170	45.3	0.101	-	0.200	0.160	0.318	0.0062	0.1
1/6/2023	0.230	74,946	52.0	0.116	-	0.230	0.160	0.318	0.0062	0.1
1/7/2023	0.250	81,463	56.6	0.126	-	0.250	0.160	0.318	0.0062	0.1
1/8/2023	0.250	81,463	56.6	0.126	-	0.250	0.160	0.318	0.0062	0.1
1/9/2023	0.240	78,204	54.3	0.121	-	0.240	0.160	0.318	0.0062	0.1
1/10/2023	0.220	71,687	49.8	0.111	-	0.220	0.150	0.298	0.0058	0.1
1/11/2023	0.230	74,946	52.0	0.116	-	0.230	0.150	0.298	0.0058	0.1
1/12/2023	0.250	81,463	56.6	0.126	-	0.250	0.150	0.298	0.0058	0.0
1/13/2023	0.270	87,980	61.1	0.136	-	0.270	0.150	0.298	0.0058	0.0
1/14/2023	0.280	91,238	63.4	0.141	-	0.280	0.150	0.298	0.0058	0.0
1/15/2023	0.260	84,721	58.8	0.131	-	0.260	0.150	0.298	0.0058	0.0
1/16/2023	0.230	74,946	52.0	0.116	-	0.230	0.150	0.298	0.0058	0.1
1/17/2023	0.230	74,946	52.0	0.116	-	0.230	0.160	0.318	0.0062	0.1
1/18/2023	0.230	74,946	52.0	0.116	-	0.230	0.160	0.318	0.0062	0.1
1/19/2023	0.210	68,429	47.5	0.106	-	0.210	0.160	0.318	0.0062	0.1
1/20/2023	0.210	68,429	47.5	0.106	-	0.210	0.160	0.318	0.0062	0.1
1/21/2023	0.230	74,946	52.0	0.116	-	0.230	0.160	0.318	0.0062	0.1
1/22/2023	0.220	71,687	49.8	0.111	-	0.220	0.160	0.318	0.0062	0.1
1/23/2023	0.200	65,170	45.3	0.101	-	0.200	0.160	0.318	0.0062	0.1
1/24/2023	0.190	61,912	43.0	0.096	-	0.190	0.145	0.288	0.0056	0.1
1/25/2023	0.200	65,170	45.3	0.101	-	0.200	0.145	0.288	0.0056	0.1
1/26/2023	0.220	71,687	49.8	0.111	-	0.220	0.145	0.288	0.0056	0.1
1/27/2023	0.240	78,204	54.3	0.121	-	0.240	0.145	0.288	0.0056	0.0
1/28/2023	0.260	84,721	58.8	0.131	-	0.260	0.145	0.288	0.0056	0.0
1/29/2023	0.250	81,463	56.6	0.126	-	0.250	0.145	0.288	0.0056	0.0
1/30/2023	0.230	74,946	52.0	0.116	-	0.230	0.145	0.288	0.0056	0.1
1/31/2023	0.220	71,687	49.8	0.111	-	0.220	0.145	0.288	0.0056	0.1
Total	**7.070**	**2,303,769**	**-**	**-**	**0**	**7.070**	**-**	**9.478**	**0.1858**	**2.222**

Notes:

(A) Lagged depletions in acre-feet calculated using Glover Method stream depletion model, based on Total Well Diversions in Table 1 Column (K)

(B) Lagged depletions in gallons, Column (A) * 325851.4

(C) Rate of lagged depletions in gallons per minute, Column (B) / (24 * 60)

(D) Rate of lagged depletions in cubic feet per second, Column (C) / (24 * 60)

(E) Days of free river at the well sites as determined by the water commissioner

(F) Lagged depletions in Column (A) after accounting for free river days in Column (E)

(G) Actual rate of replacement water released by City of Aurora to augment well depletions

(H) Actual volume of replacement water released by City of Aurora to augment well depletions

(I) Transit losses from confluence of Lake Creek and Arkansas River to well sites, Column (H) * 0.07% Division 2 accepted loss per river mile * 28 miles

(J) Column (H) - Column (F) - Column (I)

Table 2: NWNA Daily Depletions & Augmentation Releases

Ruby Mountain Springs RMBH-2 and RMBH-3 Monthly Water Balance

February-23

***Measured data**

Day	Total Lagged Depletions from RMBH-2 and RMBH-3 Wells		Daily Depletion Rates		Days of Free River at RMBH-2 and RMBH-3 Well Sites	Required Replacements for Lagged Depletions after Free River Days	Replacement Water Released by UAWCD		Replacement Water Transit Losses to Well Sites	Net Deficit (-) /Credit (+) to Arkansas River
	Volume (AF)	Volume (GALS)	GPM	CFS		(AF)	Rate (CFS)	Volume (AF)	(AF)	(AF)
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)
2/1/2023	0.230	74,946	52.0	0.116	-	0.230	0.130	0.257	0.0050	0.0220
2/2/2023	0.250	81,463	56.6	0.126	-	0.250	0.130	0.257	0.0050	0.0020
2/3/2023	0.270	87,980	61.1	0.136	-	0.270	0.130	0.257	0.0050	-0.0180
2/4/2023	0.290	94,497	65.6	0.146	-	0.290	0.130	0.257	0.0050	-0.0380
2/5/2023	0.280	91,238	63.4	0.141	-	0.280	0.130	0.257	0.0050	-0.0280
2/6/2023	0.250	81,463	56.6	0.126	-	0.250	0.130	0.257	0.0050	0.0020
2/7/2023	0.240	78,204	54.3	0.121	-	0.240	0.145	0.288	0.0056	0.0424
2/8/2023	0.240	78,204	54.3	0.121	-	0.240	0.145	0.288	0.0056	0.0424
2/9/2023	0.250	81,463	56.6	0.126	-	0.250	0.145	0.288	0.0056	0.0324
2/10/2023	0.270	87,980	61.1	0.136	-	0.270	0.145	0.288	0.0056	0.0124
2/11/2023	0.290	94,497	65.6	0.146	-	0.290	0.145	0.288	0.0056	-0.0076
2/12/2023	0.280	91,238	63.4	0.141	-	0.280	0.145	0.288	0.0056	0.0024
2/13/2023	0.250	81,463	56.6	0.126	-	0.250	0.145	0.288	0.0056	0.0324
2/14/2023	0.240	78,204	54.3	0.121	-	0.240	0.155	0.308	0.0060	0.0620
2/15/2023	0.260	84,721	58.8	0.131	-	0.260	0.155	0.308	0.0060	0.0420
2/16/2023	0.250	81,463	56.6	0.126	-	0.250	0.155	0.308	0.0060	0.0520
2/17/2023	0.250	81,463	56.6	0.126	-	0.250	0.155	0.308	0.0060	0.0520
2/18/2023	0.270	87,980	61.1	0.136	-	0.270	0.155	0.308	0.0060	0.0320
2/19/2023	0.290	94,497	65.6	0.146	-	0.290	0.155	0.308	0.0060	0.0120
2/20/2023	0.300	97,755	67.9	0.151	-	0.300	0.155	0.308	0.0060	0.0020
2/21/2023	0.310	101,014	70.1	0.156	-	0.310	0.160	0.318	0.0062	0.0018
2/22/2023	0.310	101,014	70.1	0.156	-	0.310	0.160	0.318	0.0062	0.0018
2/23/2023	0.300	97,755	67.9	0.151	-	0.300	0.160	0.318	0.0062	0.0118
2/24/2023	0.280	91,238	63.4	0.141	-	0.280	0.160	0.318	0.0062	0.0318
2/25/2023	0.280	91,238	63.4	0.141	-	0.280	0.160	0.318	0.0062	0.0318
2/26/2023	0.280	91,238	63.4	0.141	-	0.280	0.160	0.318	0.0062	0.0318
2/27/2023	0.260	84,721	58.8	0.131	-	0.260	0.160	0.318	0.0062	0.0518
2/28/2023	0.250	81,463	56.6	0.126	-	0.250	0.160	0.318	0.0062	0.0618
Total	**7.520**	**2,450,403**	**-**	**-**	**0**	**7.520**	**-**	**8.258**	**0.1619**	**0.576**

Notes:

(A) Lagged depletions in acre-feet calculated using Glover Method stream depletion model, based on Total Well Diversions in Table 1 Column (K)

(B) Lagged depletions in gallons, Column (A) * 325851.4

(C) Rate of lagged depletions in gallons per minute, Column (B) / (24 * 60)

(D) Rate of lagged depletions in cubic feet per second, Column (C) / (24 * 60)

(E) Days of free river at the well sites as determined by the water commissioner

(F) Lagged depletions in Column (A) after accounting for free river days in Column (E)

(G) Actual rate of replacement water released by City of Aurora to augment well depletions

(H) Actual volume of replacement water released by City of Aurora to augment well depletions

(I) Transit losses from confluence of Lake Creek and Arkansas River to well sites, Column (H) * 0.07% Division 2 accepted loss per river mile * 28 miles

(J) Column (H) - Column (F) - Column (I)

Table 2: NWNA Daily Depletions & Augmentation Releases

Ruby Mountain Springs RMBH-2 and RMBH-3 Monthly Water Balance

March-23

Applegate Group, Inc.

***Measured data**

Day	Total Lagged Depletions from RMBH-2 and RMBH-3 Wells		Daily Depletion Rates		Days of Free River at RMBH-2 and RMBH-3 Well Sites	Required Replacements for Lagged Depletions after Free River Days	Replacement Water Released by UAWCD		Replacement Water Transit Losses to Well Sites	Net Deficit (-) /Credit (+) to Arkansas River
	Volume (AF)	Volume (GALS)	GPM	CFS		(AF)	Rate (CFS)	Volume (AF)	(AF)	(AF)
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)
3/1/2023	0.260	84,721	58.8	0.131	-	0.260	0.160	0.318	0.0062	0.052
3/2/2023	0.280	91,238	63.4	0.141	-	0.280	0.160	0.318	0.0062	0.032
3/3/2023	0.300	97,755	67.9	0.151	-	0.300	0.160	0.318	0.0062	0.012
3/4/2023	0.310	101,014	70.1	0.156	-	0.310	0.160	0.318	0.0062	0.002
3/5/2023	0.300	97,755	67.9	0.151	-	0.300	0.160	0.318	0.0062	0.012
3/6/2023	0.260	84,721	58.8	0.131	-	0.260	0.160	0.318	0.0062	0.052
3/7/2023	0.250	81,463	56.6	0.126	-	0.250	0.160	0.318	0.0062	0.062
3/8/2023	0.260	84,721	58.8	0.131	-	0.260	0.160	0.318	0.0062	0.052
3/9/2023	0.270	87,980	61.1	0.136	-	0.270	0.160	0.318	0.0062	0.042
3/10/2023	0.280	91,238	63.4	0.141	-	0.280	0.160	0.318	0.0062	0.032
3/11/2023	0.280	91,238	63.4	0.141	-	0.280	0.160	0.318	0.0062	0.032
3/12/2023	0.280	91,238	63.4	0.141	-	0.280	0.160	0.318	0.0062	0.032
3/13/2023	0.250	81,463	56.6	0.126	-	0.250	0.160	0.318	0.0062	0.062
3/14/2023	0.250	81,463	56.6	0.126	-	0.250	0.160	0.318	0.0062	0.062
3/15/2023	0.260	84,721	58.8	0.131	-	0.260	0.160	0.318	0.0062	0.052
3/16/2023	0.280	91,238	63.4	0.141	-	0.280	0.150	0.298	0.0058	0.012
3/17/2023	0.300	97,755	67.9	0.151	-	0.300	0.150	0.298	0.0058	-0.008
3/18/2023	0.290	94,497	65.6	0.146	-	0.290	0.150	0.298	0.0058	0.002
3/19/2023	0.280	91,238	63.4	0.141	-	0.280	0.150	0.298	0.0058	0.012
3/20/2023	0.290	94,497	65.6	0.146	-	0.290	0.150	0.298	0.0058	0.002
3/21/2023	0.300	97,755	67.9	0.151	-	0.300	0.150	0.298	0.0058	-0.008
3/22/2023	0.310	101,014	70.1	0.156	-	0.310	0.150	0.298	0.0058	-0.018
3/23/2023	0.330	107,531	74.7	0.166	-	0.330	0.155	0.308	0.0060	-0.028
3/24/2023	0.340	110,789	76.9	0.171	-	0.340	0.155	0.308	0.0060	-0.038
3/25/2023	0.360	117,307	81.5	0.182	-	0.360	0.155	0.308	0.0060	-0.058
3/26/2023	0.350	114,048	79.2	0.176	-	0.350	0.155	0.308	0.0060	-0.048
3/27/2023	0.330	107,531	74.7	0.166	-	0.330	0.155	0.308	0.0060	-0.028
3/28/2023	0.310	101,014	70.1	0.156	-	0.310	0.155	0.308	0.0060	-0.008
3/29/2023	0.320	104,272	72.4	0.161	-	0.320	0.155	0.308	0.0060	-0.018
3/30/2023	0.340	110,789	76.9	0.171	-	0.340	0.155	0.308	0.0060	-0.038
3/31/2023	0.350	114,048	79.2	0.176	-	0.350	0.155	0.308	0.0060	-0.048
Total	**9.170**	**2,988,057**	**-**	**-**	**0**	**9.170**	**-**	**9.628**	**0.1887**	**0.269**

Notes:

(A) Lagged depletions in acre-feet calculated using Glover Method stream depletion model, based on Total Well Diversions in Table 1 Column (K)

(B) Lagged depletions in gallons, Column (A) * 325851.4

(C) Rate of lagged depletions in gallons per minute, Column (B) / (24 * 60)

(D) Rate of lagged depletions in cubic feet per second, Column (C) / (24 * 60)

(E) Days of free river at the well sites as determined by the water commissioner

(F) Lagged depletions in Column (A) after accounting for free river days in Column (E)

(G) Actual rate of replacement water released by City of Aurora to augment well depletions

(H) Actual volume of replacement water released by City of Aurora to augment well depletions

(I) Transit losses from confluence of Lake Creek and Arkansas River to well sites, Column (H) * 0.07% Division 2 accepted loss per river mile * 28 miles

(J) Column (H) - Column (F) - Column (I)

Table 2: BTB Daily Depletions & Augmentation Releases

Ruby Mountain Springs RMBH-2 and RMBH-3 Monthly Water Balance

April-23

***Measured data**

Day	Total Lagged Depletions from RMBH-2 and RMBH-3 Wells		Daily Depletion Rates		Days of Free River at RMBH-2 and RMBH-3 Well Sites	Required Replacements for Lagged Depletions after Free River Days	Replacement Water Released by UAWCD		Replacement Water Transit Losses to Well Sites	Net Deficit (-) /Credit (+) to Arkansas River
	Volume (AF)	Volume (GALS)	GPM	CFS		(AF)	Rate (CFS)	Volume (AF)	(AF)	(AF)
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)
4/1/2023	0.360	117,307	81.5	0.182	-	0.360	0.155	0.308	0.0060	-0.058
4/2/2023	0.340	110,789	76.9	0.171	-	0.340	0.155	0.308	0.0060	-0.038
4/3/2023	0.300	97,755	67.9	0.151	-	0.300	0.155	0.308	0.0060	0.002
4/4/2023	0.280	91,238	63.4	0.141	-	0.280	0.155	0.308	0.0060	0.022
4/5/2023	0.290	94,497	65.6	0.146	-	0.290	0.155	0.308	0.0060	0.012
4/6/2023	0.310	101,014	70.1	0.156	-	0.310	0.155	0.308	0.0060	-0.008
4/7/2023	0.330	107,531	74.7	0.166	-	0.330	0.155	0.308	0.0060	-0.028
4/8/2023	0.340	110,789	76.9	0.171	-	0.340	0.155	0.308	0.0060	-0.038
4/9/2023	0.340	110,789	76.9	0.171	-	0.340	0.155	0.308	0.0060	-0.038
4/10/2023	0.310	101,014	70.1	0.156	-	0.310	0.155	0.308	0.0060	-0.008
4/11/2023	0.290	94,497	65.6	0.146	-	0.290	0.181	0.359	0.0070	0.062
4/12/2023	0.290	94,497	65.6	0.146	-	0.290	0.181	0.359	0.0070	0.062
4/13/2023	0.310	101,014	70.1	0.156	-	0.310	0.181	0.359	0.0070	0.042
4/14/2023	0.320	104,272	72.4	0.161	-	0.320	0.181	0.359	0.0070	0.032
4/15/2023	0.340	110,789	76.9	0.171	-	0.340	0.181	0.359	0.0070	0.012
4/16/2023	0.320	104,272	72.4	0.161	-	0.320	0.181	0.359	0.0070	0.032
4/17/2023	0.290	94,497	65.6	0.146	-	0.290	0.181	0.359	0.0070	0.062
4/18/2023	0.280	91,238	63.4	0.141	-	0.280	0.171	0.339	0.0066	0.052
4/19/2023	0.290	94,497	65.6	0.146	-	0.290	0.171	0.339	0.0066	0.042
4/20/2023	0.310	101,014	70.1	0.156	-	0.310	0.171	0.339	0.0066	0.022
4/21/2023	0.320	104,272	72.4	0.161	-	0.320	0.171	0.339	0.0066	0.012
4/22/2023	0.340	110,789	76.9	0.171	-	0.340	0.171	0.339	0.0066	-0.008
4/23/2023	0.320	104,272	72.4	0.161	-	0.320	0.171	0.339	0.0066	0.012
4/24/2023	0.290	94,497	65.6	0.146	-	0.290	0.171	0.339	0.0066	0.042
4/25/2023	0.280	91,238	63.4	0.141	-	0.280	0.176	0.349	0.0068	0.062
4/26/2023	0.300	97,755	67.9	0.151	-	0.300	0.176	0.349	0.0068	0.042
4/27/2023	0.310	101,014	70.1	0.156	-	0.310	0.176	0.349	0.0068	0.032
4/28/2023	0.330	107,531	74.7	0.166	-	0.330	0.176	0.349	0.0068	0.012
4/29/2023	0.340	110,789	76.9	0.171	-	0.340	0.176	0.349	0.0068	0.002
4/30/2023	0.330	107,531	74.7	0.166	-	0.330	0.176	0.349	0.0068	0.012
Total	**9.400**	**3,063,003**	**-**	**-**	**0**	**9.400**	**-**	**10.060**	**0.1972**	**0.463**

Notes:

(A) Lagged depletions in acre-feet calculated using Glover Method stream depletion model, based on Total Well Diversions in Table 1 Column (K)

(B) Lagged depletions in gallons, Column (A) * 325851.4

(C) Rate of lagged depletions in gallons per minute, Column (B) / (24 * 60)

(D) Rate of lagged depletions in cubic feet per second, Column (C) / (24 * 60)

(E) Days of free river at the well sites as determined by the water commissioner

(F) Lagged depletions in Column (A) after accounting for free river days in Column (E)

(G) Actual rate of replacement water released by City of Aurora to augment well depletions

(H) Actual volume of replacement water released by City of Aurora to augment well depletions

(I) Transit losses from confluence of Lake Creek and Arkansas River to well sites, Column (H) * 0.07% Division 2 accepted loss per river mile * 28 miles

(J) Column (H) - Column (F) - Column (I)

Table 2: BTB Daily Depletions & Augmentation Releases

Ruby Mountain Springs RMBH-2 and RMBH-3 Monthly Water Balance

May-23

Measured data

Day	Total Lagged Depletions from RMBH-2 and RMBH-3 Wells		Daily Depletion Rates		Days of Free River at RMBH-2 and RMBH-3 Well Sites	Required Replacements for Lagged Depletions after Free River Days	Replacement Water Released by UAWCD		Replacement Water Transit Losses to Well Sites	Net Deficit (-) /Credit (+) to Arkansas River
	Volume (AF) (A)	**Volume (GALS)** (B)	**GPM** (C)	**CFS** (D)	(E)	**(AF)** (F)	**Rate (CFS)** (G)	**Volume (AF)** (H)	**(AF)** (I)	**(AF)** (J)
5/1/2023	0.300	97,755	67.9	0.151	-	0.300	0.181	0.359	0.0070	0.052
5/2/2023	0.300	97,755	67.9	0.151	-	0.300	0.181	0.359	0.0070	0.052
5/3/2023	0.310	101,014	70.1	0.156	-	0.310	0.181	0.359	0.0070	0.042
5/4/2023	0.320	104,272	72.4	0.161	-	0.320	0.181	0.359	0.0070	0.032
5/5/2023	0.340	110,789	76.9	0.171	-	0.340	0.181	0.359	0.0070	0.012
5/6/2023	0.350	114,048	79.2	0.176	-	0.350	0.181	0.359	0.0070	0.002
5/7/2023	0.350	114,048	79.2	0.176	-	0.350	0.181	0.359	0.0070	0.002
5/8/2023	0.330	107,531	74.7	0.166	-	0.330	0.181	0.359	0.0070	0.022
5/9/2023	0.320	104,272	72.4	0.161	-	0.320	0.181	0.359	0.0070	0.032
5/10/2023	0.320	104,272	72.4	0.161	-	0.320	0.181	0.359	0.0070	0.032
5/11/2023	0.340	110,789	76.9	0.171	-	0.340	0.181	0.359	0.0070	0.012
5/12/2023	0.350	114,048	79.2	0.176	-	0.350	0.181	0.359	0.0070	0.002
5/13/2023	0.360	117,307	81.5	0.182	-	0.360	0.181	0.359	0.0070	-0.008
5/14/2023	0.350	114,048	79.2	0.176	-	0.350	0.181	0.359	0.0070	0.002
5/15/2023	0.320	104,272	72.4	0.161	-	0.320	0.181	0.359	0.0070	0.032
5/16/2023	0.300	97,755	67.9	0.151	-	0.300	0.181	0.359	0.0070	0.052
5/17/2023	0.310	101,014	70.1	0.156	-	0.310	0.186	0.369	0.0072	0.052
5/18/2023	0.320	104,272	72.4	0.161	-	0.320	0.186	0.369	0.0072	0.042
5/19/2023	0.340	110,789	76.9	0.171	-	0.340	0.186	0.369	0.0072	0.022
5/20/2023	0.350	114,048	79.2	0.176	-	0.350	0.186	0.369	0.0072	0.012
5/21/2023	0.340	110,789	76.9	0.171	-	0.340	0.186	0.369	0.0072	0.022
5/22/2023	0.310	101,014	70.1	0.156	-	0.310	0.186	0.369	0.0072	0.052
5/23/2023	0.280	91,238	63.4	0.141	-	0.280	0.186	0.369	0.0072	0.082
5/24/2023	0.280	91,238	63.4	0.141	-	0.280	0.191	0.379	0.0074	0.092
5/25/2023	0.300	97,755	67.9	0.151	-	0.300	0.191	0.379	0.0074	0.072
5/26/2023	0.320	104,272	72.4	0.161	-	0.320	0.191	0.379	0.0074	0.052
5/27/2023	0.330	107,531	74.7	0.166	-	0.330	0.191	0.379	0.0074	0.042
5/28/2023	0.320	104,272	72.4	0.161	-	0.320	0.191	0.379	0.0074	0.052
5/29/2023	0.280	91,238	63.4	0.141	-	0.280	0.191	0.379	0.0074	0.092
5/30/2023	0.270	87,980	61.1	0.136	-	0.270	0.191	0.379	0.0074	0.102
5/31/2023	0.290	94,497	65.6	0.146	-	0.290	0.191	0.379	0.0074	0.082
Total	**9.900**	**3,225,929**	**-**	**-**	**0**	**9.900**	**-**	**11.359**	**0.2226**	**1.236**

Notes:

(A) Lagged depletions in acre-feet calculated using Glover Method stream depletion model, based on Total Well Diversions in Table 1 Column (K)

(B) Lagged depletions in gallons, Column (A) * 325851.4

(C) Rate of lagged depletions in gallons per minute, Column (B) / (24 * 60)

(D) Rate of lagged depletions in cubic feet per second, Column (C) / (24 * 60)

(E) Days of free river at the well sites as determined by the water commissioner

(F) Lagged depletions in Column (A) after accounting for free river days in Column (E)

(G) Actual rate of replacement water released by City of Aurora to augment well depletions

(H) Actual volume of replacement water released by City of Aurora to augment well depletions

(I) Transit losses from confluence of Lake Creek and Arkansas River to well sites, Column (H) * 0.07% Division 2 accepted loss per river mile * 28 miles

(J) Column (H) - Column (F) - Column (I)

Table 2: BTB Daily Depletions & Augmentation Releases

Ruby Mountain Springs RMBH-2 and RMBH-3 Monthly Water Balance

June-23

Applegate Group, Inc.

***Measured data**

Day	Total Lagged Depletions from RMBH-2 and RMBH-3 Wells		Daily Depletion Rates		Days of Free River at RMBH-2 and RMBH-3 Well Sites	Required Replacements for Lagged Depletions after Free River Days	Replacement Water Released by UAWCD		Replacement Water Transit Losses to Well Sites	Net Deficit (-) /Credit (+) to Arkansas River
	Volume (AF)	Volume (GALS)	GPM	CFS		(AF)	Rate (CFS)	Volume (AF)	(AF)	(AF)
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)
6/1/2023	0.310	101,014	70.1	0.156	-	0.310	0.176	0.349	0.0068	0.032
6/2/2023	0.320	104,272	72.4	0.161	-	0.320	0.176	0.349	0.0068	0.022
6/3/2023	0.320	104,272	72.4	0.161	-	0.320	0.176	0.349	0.0068	0.022
6/4/2023	0.300	97,755	67.9	0.151	-	0.300	0.176	0.349	0.0068	0.042
6/5/2023	0.260	84,721	58.8	0.131	-	0.260	0.176	0.349	0.0068	0.082
6/6/2023	0.240	78,204	54.3	0.121	-	0.240	0.176	0.349	0.0068	0.102
6/7/2023	0.250	81,463	56.6	0.126	-	0.250	0.176	0.349	0.0068	0.092
6/8/2023	0.270	87,980	61.1	0.136	-	0.270	0.176	0.349	0.0068	0.072
6/9/2023	0.280	91,238	63.4	0.141	-	0.280	0.181	0.359	0.0070	0.072
6/10/2023	0.280	91,238	63.4	0.141	-	0.280	0.181	0.359	0.0070	0.072
6/11/2023	0.270	87,980	61.1	0.136	-	0.270	0.181	0.359	0.0070	0.082
6/12/2023	0.240	78,204	54.3	0.121	-	0.240	0.181	0.359	0.0070	0.112
6/13/2023	0.220	71,687	49.8	0.111	-	0.220	0.181	0.359	0.0070	0.132
6/14/2023	0.220	71,687	49.8	0.111	-	0.220	0.181	0.359	0.0070	0.132
6/15/2023	0.240	78,204	54.3	0.121	-	0.240	0.181	0.359	0.0070	0.112
6/16/2023	0.240	78,204	54.3	0.121	-	0.240	0.165	0.328	0.0064	0.082
6/17/2023	0.240	78,204	54.3	0.121	-	0.240	0.165	0.328	0.0064	0.082
6/18/2023	0.230	74,946	52.0	0.116	-	0.230	0.165	0.328	0.0064	0.092
6/19/2023	0.220	71,687	49.8	0.111	-	0.220	0.165	0.328	0.0064	0.102
6/20/2023	0.190	61,912	43.0	0.096	-	0.190	0.165	0.328	0.0064	0.132
6/21/2023	0.190	61,912	43.0	0.096	-	0.190	0.165	0.328	0.0064	0.132
6/22/2023	0.210	68,429	47.5	0.106	-	0.210	0.165	0.328	0.0064	0.112
6/23/2023	0.230	74,946	52.0	0.116	-	0.230	0.119	0.237	0.0046	0.002
6/24/2023	0.230	74,946	52.0	0.116	-	0.230	0.119	0.237	0.0046	0.002
6/25/2023	0.200	65,170	45.3	0.101	-	0.200	0.119	0.237	0.0046	0.032
6/26/2023	0.170	55,395	38.5	0.086	-	0.170	0.119	0.237	0.0046	0.062
6/27/2023	0.150	48,878	33.9	0.076	-	0.150	0.119	0.237	0.0046	0.082
6/28/2023	0.150	48,878	33.9	0.076	-	0.150	0.119	0.237	0.0046	0.082
6/29/2023	0.180	58,653	40.7	0.091	-	0.180	0.119	0.237	0.0046	0.052
6/30/2023	0.210	68,429	47.5	0.106	-	0.210	0.119	0.237	0.0046	0.022
Total	**7.060**	**2,300,511**	**-**	**-**	**0**	**7.060**	**-**	**9.497**	**0.1861**	**2.251**

Notes:

(A) Lagged depletions in acre-feet calculated using Glover Method stream depletion model, based on Total Well Diversions in Table 1 Column (K)

(B) Lagged depletions in gallons, Column (A) * 325851.4

(C) Rate of lagged depletions in gallons per minute, Column (B) / (24 * 60)

(D) Rate of lagged depletions in cubic feet per second, Column (C) / (24 * 60)

(E) Days of free river at the well sites as determined by the water commissioner

(F) Lagged depletions in Column (A) after accounting for free river days in Column (E)

(G) Actual rate of replacement water released by City of Aurora to augment well depletions

(H) Actual volume of replacement water released by City of Aurora to augment well depletions

(I) Transit losses from confluence of Lake Creek and Arkansas River to well sites, Column (H) * 0.07% Division 2 accepted loss per river mile * 28 miles

(J) Column (H) - Column (F) - Column (I)

Table 2: BTB Daily Depletions & Augmentation Releases

Ruby Mountain Springs RMBH-2 and RMBH-3 Monthly Water Balance

July-23

Applegate Group, Inc.

Measured data

Day	Total Lagged Depletions from RMBH-2 and RMBH-3 Wells		Daily Depletion Rates		Days of Free River at RMBH-2 and RMBH-3 Well Sites	Required Replacements for Lagged Depletions after Free River Days	Replacement Water Released by UAWCD		Replacement Water Transit Losses to Well Sites	Net Deficit (-) /Credit (+) to Arkansas River
	Volume (AF) (A)	Volume (GALS) (B)	GPM (C)	CFS (D)	(E)	(AF) (F)	Rate (CFS) (G)	Volume (AF) (H)	(AF) (I)	(AF) (J)
7/1/2023	0.230	74,946	52.0	0.116	-	0.230	0.130	0.257	0.0050	0.022
7/2/2023	0.230	74,946	52.0	0.116	-	0.230	0.130	0.257	0.0050	0.022
7/3/2023	0.210	68,429	47.5	0.106	-	0.210	0.130	0.257	0.0050	0.042
7/4/2023	0.200	65,170	45.3	0.101	-	0.200	0.130	0.257	0.0050	0.052
7/5/2023	0.190	61,912	43.0	0.096	-	0.190	0.130	0.257	0.0050	0.062
7/6/2023	0.200	65,170	45.3	0.101	-	0.200	0.130	0.257	0.0050	0.052
7/7/2023	0.210	68,429	47.5	0.106	-	0.210	0.130	0.257	0.0050	0.042
7/8/2023	0.230	74,946	52.0	0.116	-	0.230	0.130	0.257	0.0050	0.022
7/9/2023	0.230	74,946	52.0	0.116	-	0.230	0.145	0.288	0.0056	0.052
7/10/2023	0.200	65,170	45.3	0.101	-	0.200	0.145	0.288	0.0056	0.082
7/11/2023	0.190	61,912	43.0	0.096	-	0.190	0.145	0.288	0.0056	0.092
7/12/2023	0.200	65,170	45.3	0.101	-	0.200	0.145	0.288	0.0056	0.082
7/13/2023	0.210	68,429	47.5	0.106	-	0.210	0.145	0.288	0.0056	0.072
7/14/2023	0.220	71,687	49.8	0.111	-	0.220	0.145	0.288	0.0056	0.062
7/15/2023	0.220	71,687	49.8	0.111	-	0.220	0.145	0.288	0.0056	0.062
7/16/2023	0.220	71,687	49.8	0.111	-	0.220	0.135	0.267	0.0052	0.042
7/17/2023	0.190	61,912	43.0	0.096	-	0.190	0.135	0.267	0.0052	0.072
7/18/2023	0.180	58,653	40.7	0.091	-	0.180	0.135	0.267	0.0052	0.082
7/19/2023	0.190	61,912	43.0	0.096	-	0.190	0.135	0.267	0.0052	0.072
7/20/2023	0.200	65,170	45.3	0.101	-	0.200	0.135	0.267	0.0052	0.062
7/21/2023	0.210	68,429	47.5	0.106	-	0.210	0.135	0.267	0.0052	0.052
7/22/2023	0.220	71,687	49.8	0.111	-	0.220	0.135	0.267	0.0052	0.042
7/23/2023	0.210	68,429	47.5	0.106	-	0.210	0.135	0.267	0.0052	0.052
7/24/2023	0.190	61,912	43.0	0.096	-	0.190	0.119	0.237	0.0046	0.042
7/25/2023	0.180	58,653	40.7	0.091	-	0.180	0.119	0.237	0.0046	0.052
7/26/2023	0.190	61,912	43.0	0.096	-	0.190	0.119	0.237	0.0046	0.042
7/27/2023	0.190	61,912	43.0	0.096	-	0.190	0.119	0.237	0.0046	0.042
7/28/2023	0.180	58,653	40.7	0.091	-	0.180	0.119	0.237	0.0046	0.052
7/29/2023	0.180	58,653	40.7	0.091	-	0.180	0.119	0.237	0.0046	0.052
7/30/2023	0.170	55,395	38.5	0.086	-	0.170	0.119	0.237	0.0046	0.062
7/31/2023	0.150	48,878	33.9	0.076	-	0.150	0.119	0.237	0.0046	0.082
Total	**6.220**	**2,026,796**	**-**	**-**	**0**	**6.220**	**-**	**8.104**	**0.1588**	**1.725**

Notes:

(A) Lagged depletions in acre-feet calculated using Glover Method stream depletion model, based on Total Well Diversions in Table 1 Column (K)

(B) Lagged depletions in gallons, Column (A) * 325851.4

(C) Rate of lagged depletions in gallons per minute, Column (B) / (24 * 60)

(D) Rate of lagged depletions in cubic feet per second, Column (C) / (24 * 60)

(E) Days of free river at the well sites as determined by the water commissioner

(F) Lagged depletions in Column (A) after accounting for free river days in Column (E)

(G) Actual rate of replacement water released by City of Aurora to augment well depletions

(H) Actual volume of replacement water released by City of Aurora to augment well depletions

(I) Transit losses from confluence of Lake Creek and Arkansas River to well sites, Column (H) * 0.07% Division 2 accepted loss per river mile * 28 miles

(J) Column (H) - Column (F) - Column (I)

Table 2: BTB Daily Depletions & Augmentation Releases

Ruby Mountain Springs RMBH-2 and RMBH-3 Monthly Water Balance

August-23

Applegate Group, Inc.

***Measured data**

Day	Total Lagged Depletions from RMBH-2 and RMBH-3 Wells		Daily Depletion Rates		Days of Free River at RMBH-2 and RMBH-3 Well Sites	Required Replacements for Lagged Depletions after Free River Days	Replacement Water Released by UAWCD		Replacement Water Transit Losses to Well Sites	Net Deficit (-) /Credit (+) to Arkansas River
	Volume (AF) (A)	Volume (GALS) (B)	GPM (C)	CFS (D)	(E)	(AF) (F)	Rate (CFS) (G)	Volume (AF) (H)	(AF) (I)	(AF) (J)
8/1/2023	0.150	48,878	33.9	0.076	-	0.150	0.119	0.237	0.0046	0.082
8/2/2023	0.160	52,136	36.2	0.081	-	0.160	0.119	0.237	0.0046	0.072
8/3/2023	0.170	55,395	38.5	0.086	-	0.170	0.119	0.237	0.0046	0.062
8/4/2023	0.190	61,912	43.0	0.096	-	0.190	0.119	0.237	0.0046	0.042
8/5/2023	0.210	68,429	47.5	0.106	-	0.210	0.119	0.237	0.0046	0.022
8/6/2023	0.220	71,687	49.8	0.111	-	0.220	0.119	0.237	0.0046	0.012
8/7/2023	0.200	65,170	45.3	0.101	-	0.200	0.119	0.237	0.0046	0.032
8/8/2023	0.200	65,170	45.3	0.101	-	0.200	0.119	0.237	0.0046	0.032
8/9/2023	0.210	68,429	47.5	0.106	-	0.210	0.104	0.206	0.0040	-0.008
8/10/2023	0.220	71,687	49.8	0.111	-	0.220	0.104	0.206	0.0040	-0.018
8/11/2023	0.240	78,204	54.3	0.121	-	0.240	0.104	0.206	0.0040	-0.038
8/12/2023	0.250	81,463	56.6	0.126	-	0.250	0.104	0.206	0.0040	-0.048
8/13/2023	0.240	78,204	54.3	0.121	-	0.240	0.104	0.206	0.0040	-0.038
8/14/2023	0.220	71,687	49.8	0.111	-	0.220	0.104	0.206	0.0040	-0.018
8/15/2023	0.190	61,912	43.0	0.096	-	0.190	0.104	0.206	0.0040	0.012
8/16/2023	0.180	58,653	40.7	0.091	-	0.180	0.109	0.216	0.0042	0.032
8/17/2023	0.190	61,912	43.0	0.096	-	0.190	0.109	0.216	0.0042	0.022
8/18/2023	0.210	68,429	47.5	0.106	-	0.210	0.109	0.216	0.0042	0.002
8/19/2023	0.250	81,463	56.6	0.126	-	0.250	0.109	0.216	0.0042	-0.038
8/20/2023	0.260	84,721	58.8	0.131	-	0.260	0.109	0.216	0.0042	-0.048
8/21/2023	0.240	78,204	54.3	0.121	-	0.240	0.109	0.216	0.0042	-0.028
8/22/2023	0.220	71,687	49.8	0.111	-	0.220	0.109	0.216	0.0042	-0.008
8/23/2023	0.230	74,946	52.0	0.116	-	0.230	0.109	0.216	0.0042	-0.018
8/24/2023	0.240	78,204	54.3	0.121	-	0.240	0.119	0.237	0.0046	-0.008
8/25/2023	0.250	81,463	56.6	0.126	-	0.250	0.119	0.237	0.0046	-0.018
8/26/2023	0.250	81,463	56.6	0.126	-	0.250	0.119	0.237	0.0046	-0.018
8/27/2023	0.230	74,946	52.0	0.116	-	0.230	0.119	0.237	0.0046	0.002
8/28/2023	0.210	68,429	47.5	0.106	-	0.210	0.119	0.237	0.0046	0.022
8/29/2023	0.200	65,170	45.3	0.101	-	0.200	0.119	0.237	0.0046	0.032
8/30/2023	0.210	68,429	47.5	0.106	-	0.210	0.119	0.237	0.0046	0.022
8/31/2023	0.220	71,687	49.8	0.111	-	0.220	0.119	0.237	0.0046	0.012
Total	**6.660**	**2,170,170**	**-**	**-**	**0**	**6.660**	**-**	**6.962**	**0.1365**	**0.166**

Notes:

(A) Lagged depletions in acre-feet calculated using Glover Method stream depletion model, based on Total Well Diversions in Table 1 Column (K)

(B) Lagged depletions in gallons, Column (A) * 325851.4

(C) Rate of lagged depletions in gallons per minute, Column (B) / (24 * 60)

(D) Rate of lagged depletions in cubic feet per second, Column (C) / (24 * 60)

(E) Days of free river at the well sites as determined by the water commissioner

(F) Lagged depletions in Column (A) after accounting for free river days in Column (E)

(G) Actual rate of replacement water released by City of Aurora to augment well depletions

(H) Actual volume of replacement water released by City of Aurora to augment well depletions

(I) Transit losses from confluence of Lake Creek and Arkansas River to well sites, Column (H) * 0.07% Division 2 accepted loss per river mile * 28 miles

(J) Column (H) - Column (F) - Column (I)

Table 2: BTB Daily Depletions & Augmentation Releases

Ruby Mountain Springs RMBH-2 and RMBH-3 Monthly Water Balance

September-23

***Measured data**

Day	Total Lagged Depletions from RMBH-2 and RMBH-3 Wells		Daily Depletion Rates		Days of Free River at RMBH-2 and RMBH-3 Well Sites	Required Replacements for Lagged Depletions after Free River Days	Replacement Water Released by UAWCD		Replacement Water Transit Losses to Well Sites	Net Deficit (-) /Credit (+) to Arkansas River
	Volume (AF) (A)	Volume (GALS) (B)	GPM (C)	CFS (D)	(E)	(AF) (F)	Rate (CFS) (G)	Volume (AF) (H)	(AF) (I)	(AF) (J)
9/1/2023	0.240	78,204	54.3	0.121	-	0.240	0.119	0.237	0.0046	-0.008
9/2/2023	0.250	81,463	56.6	0.126	-	0.250	0.119	0.237	0.0046	-0.018
9/3/2023	0.250	81,463	56.6	0.126	-	0.250	0.119	0.237	0.0046	-0.018
9/4/2023	0.230	74,946	52.0	0.116	-	0.230	0.119	0.237	0.0046	0.002
9/5/2023	0.220	71,687	49.8	0.111	-	0.220	0.119	0.237	0.0046	0.012
9/6/2023	0.230	74,946	52.0	0.116	-	0.230	0.119	0.237	0.0046	0.002
9/7/2023	0.240	78,204	54.3	0.121	-	0.240	0.119	0.237	0.0046	-0.008
9/8/2023	0.250	81,463	56.6	0.126	-	0.250	0.119	0.237	0.0046	-0.018
9/9/2023	0.260	84,721	58.8	0.131	-	0.260	0.119	0.237	0.0046	-0.028
9/10/2023	0.260	84,721	58.8	0.131	-	0.260	0.119	0.237	0.0046	-0.028
9/11/2023	0.240	78,204	54.3	0.121	-	0.240	0.119	0.237	0.0046	-0.008
9/12/2023	0.220	71,687	49.8	0.111	-	0.220	0.119	0.237	0.0046	0.012
9/13/2023	0.220	71,687	49.8	0.111	-	0.220	0.119	0.237	0.0046	0.012
9/14/2023	0.230	74,946	52.0	0.116	-	0.230	0.119	0.237	0.0046	0.002
9/15/2023	0.240	78,204	54.3	0.121	-	0.240	0.140	0.277	0.0054	0.032
9/16/2023	0.250	81,463	56.6	0.126	-	0.250	0.140	0.277	0.0054	0.022
9/17/2023	0.250	81,463	56.6	0.126	-	0.250	0.140	0.277	0.0054	0.022
9/18/2023	0.230	74,946	52.0	0.116	-	0.230	0.140	0.277	0.0054	0.042
9/19/2023	0.210	68,429	47.5	0.106	-	0.210	0.140	0.277	0.0054	0.062
9/20/2023	0.220	71,687	49.8	0.111	-	0.220	0.140	0.277	0.0054	0.052
9/21/2023	0.230	74,946	52.0	0.116	-	0.230	0.140	0.277	0.0054	0.042
9/22/2023	0.250	81,463	56.6	0.126	-	0.250	0.140	0.277	0.0054	0.022
9/23/2023	0.260	84,721	58.8	0.131	-	0.260	0.140	0.277	0.0054	0.012
9/24/2023	0.260	84,721	58.8	0.131	-	0.260	0.140	0.277	0.0054	0.012
9/25/2023	0.240	78,204	54.3	0.121	-	0.240	0.140	0.277	0.0054	0.032
9/26/2023	0.230	74,946	52.0	0.116	-	0.230	0.140	0.277	0.0054	0.042
9/27/2023	0.250	81,463	56.6	0.126	-	0.250	0.140	0.277	0.0054	0.022
9/28/2023	0.250	81,463	56.6	0.126	-	0.250	0.140	0.277	0.0054	0.022
9/29/2023	0.260	84,721	58.8	0.131	-	0.260	0.140	0.277	0.0054	0.012
9/30/2023	0.270	87,980	61.1	0.136	-	0.270	0.140	0.277	0.0054	0.002
Total	**7.240**	**2,359,164**	**-**	**-**	**0**	**7.240**	**-**	**7.750**	**0.1519**	**0.358**

Notes:

(A) Lagged depletions in acre-feet calculated using Glover Method stream depletion model, based on Total Well Diversions in Table 1 Column (K)

(B) Lagged depletions in gallons, Column (A) * 325851.4

(C) Rate of lagged depletions in gallons per minute, Column (B) / (24 * 60)

(D) Rate of lagged depletions in cubic feet per second, Column (C) / (24 * 60)

(E) Days of free river at the well sites as determined by the water commissioner

(F) Lagged depletions in Column (A) after accounting for free river days in Column (E)

(G) Actual rate of replacement water released by City of Aurora to augment well depletions

(H) Actual volume of replacement water released by City of Aurora to augment well depletions

(I) Transit losses from confluence of Lake Creek and Arkansas River to well sites, Column (H) * 0.07% Division 2 accepted loss per river mile * 28 miles

(J) Column (H) - Column (F) - Column (I)

Table 2: BTB Daily Depletions & Augmentation Releases

Ruby Mountain Springs RMBH-2 and RMBH-3 Monthly Water Balance

October-23

Measured data

Day	Total Lagged Depletions from RMBH-2 and RMBH-3 Wells		Daily Depletion Rates		Days of Free River at RMBH-2 and RMBH-3 Well Sites	Required Replacements for Lagged Depletions after Free River Days	Replacement Water Released by UAWCD		Replacement Water Transit Losses to Well Sites	Net Deficit (-) /Credit (+) to Arkansas River
	Volume (AF)	Volume (GALS)	GPM	CFS		(AF)	Rate (CFS)	Volume (AF)	(AF)	(AF)
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)
10/1/2023	0.260	84,721	58.8	0.131	-	0.260	0.135	0.267	0.0052	0.002
10/2/2023	0.240	78,204	54.3	0.121	-	0.240	0.135	0.267	0.0052	0.022
10/3/2023	0.220	71,687	49.8	0.111	-	0.220	0.135	0.267	0.0052	0.042
10/4/2023	0.230	74,946	52.0	0.116	-	0.230	0.135	0.267	0.0052	0.032
10/5/2023	0.250	81,463	56.6	0.126	-	0.250	0.135	0.267	0.0052	0.012
10/6/2023	0.270	87,980	61.1	0.136	-	0.270	0.135	0.267	0.0052	-0.008
10/7/2023	0.260	84,721	58.8	0.131	-	0.260	0.135	0.267	0.0052	0.002
10/8/2023	0.220	71,687	49.8	0.111	-	0.220	0.135	0.267	0.0052	0.042
10/9/2023	0.190	61,912	43.0	0.096	-	0.190	0.135	0.267	0.0052	0.072
10/10/2023	0.190	61,912	43.0	0.096	-	0.190	0.135	0.267	0.0052	0.072
10/11/2023	0.210	68,429	47.5	0.106	-	0.210	0.125	0.247	0.0048	0.032
10/12/2023	0.210	68,429	47.5	0.106	-	0.210	0.125	0.247	0.0048	0.032
10/13/2023	0.230	74,946	52.0	0.116	-	0.230	0.125	0.247	0.0048	0.012
10/14/2023	0.230	74,946	52.0	0.116	-	0.230	0.125	0.247	0.0048	0.012
10/15/2023	0.200	65,170	45.3	0.101	-	0.200	0.125	0.247	0.0048	0.042
10/16/2023	0.180	58,653	40.7	0.091	-	0.180	0.125	0.247	0.0048	0.062
10/17/2023	0.180	58,653	40.7	0.091	-	0.180	0.125	0.247	0.0048	0.062
10/18/2023	0.170	55,395	38.5	0.086	-	0.170	0.109	0.216	0.0042	0.042
10/19/2023	0.180	58,653	40.7	0.091	-	0.180	0.109	0.216	0.0042	0.032
10/20/2023	0.190	61,912	43.0	0.096	-	0.190	0.109	0.216	0.0042	0.022
10/21/2023	0.190	61,912	43.0	0.096	-	0.190	0.109	0.216	0.0042	0.022
10/22/2023	0.170	55,395	38.5	0.086	-	0.170	0.109	0.216	0.0042	0.042
10/23/2023	0.150	48,878	33.9	0.076	-	0.150	0.109	0.216	0.0042	0.062
10/24/2023	0.160	52,136	36.2	0.081	-	0.160	0.109	0.216	0.0042	0.052
10/25/2023	0.180	58,653	40.7	0.091	-	0.180	0.094	0.186	0.0036	0.002
10/26/2023	0.200	65,170	45.3	0.101	-	0.200	0.094	0.186	0.0036	-0.018
10/27/2023	0.210	68,429	47.5	0.106	-	0.210	0.094	0.186	0.0036	-0.028
10/28/2023	0.200	65,170	45.3	0.101	-	0.200	0.094	0.186	0.0036	-0.018
10/29/2023	0.170	55,395	38.5	0.086	-	0.170	0.094	0.186	0.0036	0.012
10/30/2023	0.150	48,878	33.9	0.076	-	0.150	0.094	0.186	0.0036	0.032
10/31/2023	0.160	52,136	36.2	0.081	-	0.160	0.094	0.186	0.0036	0.022
Total	**6.250**	**2,036,571**	**-**	**-**	**0**	**6.250**	**-**	**7.213**	**0.1414**	**0.822**

Notes:

(A) Lagged depletions in acre-feet calculated using Glover Method stream depletion model, based on Total Well Diversions in Table 1 Column (K)

(B) Lagged depletions in gallons, Column (A) * 325851.4

(C) Rate of lagged depletions in gallons per minute, Column (B) / (24 * 60)

(D) Rate of lagged depletions in cubic feet per second, Column (C) / (24 * 60)

(E) Days of free river at the well sites as determined by the water commissioner

(F) Lagged depletions in Column (A) after accounting for free river days in Column (E)

(G) Actual rate of replacement water released by City of Aurora to augment well depletions

(H) Actual volume of replacement water released by City of Aurora to augment well depletions

(I) Transit losses from confluence of Lake Creek and Arkansas River to well sites, Column (H) * 0.07% Division 2 accepted loss per river mile * 28 miles

(J) Column (H) - Column (F) - Column (I)

Table 2: BTB Daily Depletions & Augmentation Releases

Ruby Mountain Springs RMBH-2 and RMBH-3 Monthly Water Balance

November-23

***Measured data**

Day	Total Lagged Depletions from RMBH-2 and RMBH-3 Wells		Daily Depletion Rates		Days of Free River at RMBH-2 and RMBH-3 Well Sites	Required Replacements for Lagged Depletions after Free River Days	Replacement Water Released by UAWCD		Replacement Water Transit Losses to Well Sites	Net Deficit (-) /Credit (+) to Arkansas River
	Volume (AF)	Volume (GALS)	GPM	CFS		(AF)	Rate (CFS)	Volume (AF)	(AF)	(AF)
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)
11/1/2023	0.180	58,653	40.7	0.091	-	0.180	0.099	0.196	0.0038	0.012
11/2/2023	0.200	65,170	45.3	0.101	-	0.200	0.099	0.196	0.0038	-0.008
11/3/2023	0.210	68,429	47.5	0.106	-	0.210	0.099	0.196	0.0038	-0.018
11/4/2023	0.180	58,653	40.7	0.091	-	0.180	0.099	0.196	0.0038	0.012
11/5/2023	0.150	48,878	33.9	0.076	-	0.150	0.099	0.196	0.0038	0.042
11/6/2023	0.130	42,361	29.4	0.066	-	0.130	0.099	0.196	0.0038	0.062
11/7/2023	0.150	48,878	33.9	0.076	-	0.150	0.099	0.196	0.0038	0.042
11/8/2023	0.170	55,395	38.5	0.086	-	0.170	0.099	0.196	0.0038	0.022
11/9/2023	0.200	65,170	45.3	0.101	-	0.200	0.099	0.196	0.0038	-0.008
11/10/2023	0.220	71,687	49.8	0.111	-	0.220	0.099	0.196	0.0038	-0.028
11/11/2023	0.220	71,687	49.8	0.111	-	0.220	0.099	0.196	0.0038	-0.028
11/12/2023	0.200	65,170	45.3	0.101	-	0.200	0.099	0.196	0.0038	-0.008
11/13/2023	0.180	58,653	40.7	0.091	-	0.180	0.099	0.196	0.0038	0.012
11/14/2023	0.200	65,170	45.3	0.101	-	0.200	0.099	0.196	0.0038	-0.008
11/15/2023	0.220	71,687	49.8	0.111	-	0.220	0.104	0.206	0.0040	-0.018
11/16/2023	0.230	74,946	52.0	0.116	-	0.230	0.104	0.206	0.0040	-0.028
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11/18/2023	0.240	78,204	54.3	0.121	-	0.240	0.104	0.206	0.0040	-0.038
11/19/2023	0.220	71,687	49.8	0.111	-	0.220	0.104	0.206	0.0040	-0.018
11/20/2023	0.190	61,912	43.0	0.096	-	0.190	0.104	0.206	0.0040	0.012
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11/22/2023	0.230	74,946	52.0	0.116	-	0.230	0.104	0.206	0.0040	-0.028
11/23/2023	0.230	74,946	52.0	0.116	-	0.230	0.119	0.237	0.0046	0.002
11/24/2023	0.200	65,170	45.3	0.101	-	0.200	0.119	0.237	0.0046	0.032
11/25/2023	0.170	55,395	38.5	0.086	-	0.170	0.119	0.237	0.0046	0.062
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11/28/2023	0.210	68,429	47.5	0.106	-	0.210	0.119	0.237	0.0046	0.022
11/29/2023	0.230	74,946	52.0	0.116	-	0.230	0.119	0.237	0.0046	0.002
11/30/2023	0.250	81,463	56.6	0.126	-	0.250	0.119	0.237	0.0046	-0.018
Total	**5.980**	**1,948,591**	**-**	**-**	**0**	**5.980**	**-**	**6.288**	**0.1232**	**0.185**

Notes:

(A) Lagged depletions in acre-feet calculated using Glover Method stream depletion model, based on Total Well Diversions in Table 1 Column (K)

(B) Lagged depletions in gallons, Column (A) * 325851.4

(C) Rate of lagged depletions in gallons per minute, Column (B) / (24 * 60)

(D) Rate of lagged depletions in cubic feet per second, Column (C) / (24 * 60)

(E) Days of free river at the well sites as determined by the water commissioner

(F) Lagged depletions in Column (A) after accounting for free river days in Column (E)

(G) Actual rate of replacement water released by City of Aurora to augment well depletions

(H) Actual volume of replacement water released by City of Aurora to augment well depletions

(I) Transit losses from confluence of Lake Creek and Arkansas River to well sites, Column (H) * 0.07% Division 2 accepted loss per river mile * 28 miles

(J) Column (H) - Column (F) - Column (I)

Table 2: BTB Daily Depletions & Augmentation Releases

Ruby Mountain Springs RMBH-2 and RMBH-3 Monthly Water Balance

December-23

***Measured data**

Day	Total Lagged Depletions from RMBH-2 and RMBH-3 Wells		Daily Depletion Rates		Days of Free River at RMBH-2 and RMBH-3 Well Sites	Required Replacements for Lagged Depletions after Free River Days	Replacement Water Released by UAWCD		Replacement Water Transit Losses to Well Sites	Net Deficit (-) /Credit (+) to Arkansas River
	Volume (AF)	Volume (GALS)	GPM	CFS		(AF)	Rate (CFS)	Volume (AF)	(AF)	(AF)
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)
12/1/2023	0.240	78,204	54.3	0.121	-	0.240	0.114	0.226	0.0044	-0.018
12/2/2023	0.240	78,204	54.3	0.121	-	0.240	0.114	0.226	0.0044	-0.018
12/3/2023	0.200	65,170	45.3	0.101	-	0.200	0.114	0.226	0.0044	0.022
12/4/2023	0.180	58,653	40.7	0.091	-	0.180	0.114	0.226	0.0044	0.042
12/5/2023	0.200	65,170	45.3	0.101	-	0.200	0.114	0.226	0.0044	0.022
12/6/2023	0.220	71,687	49.8	0.111	-	0.220	0.114	0.226	0.0044	0.002
12/7/2023	0.240	78,204	54.3	0.121	-	0.240	0.114	0.226	0.0044	-0.018
12/8/2023	0.250	81,463	56.6	0.126	-	0.250	0.114	0.226	0.0044	-0.028
12/9/2023	0.240	78,204	54.3	0.121	-	0.240	0.119	0.237	0.0046	-0.008
12/10/2023	0.200	65,170	45.3	0.101	-	0.200	0.119	0.237	0.0046	0.032
12/11/2023	0.180	58,653	40.7	0.091	-	0.180	0.119	0.237	0.0046	0.052
12/12/2023	0.200	65,170	45.3	0.101	-	0.200	0.119	0.237	0.0046	0.032
12/13/2023	0.220	71,687	49.8	0.111	-	0.220	0.119	0.237	0.0046	0.012
12/14/2023	0.220	71,687	49.8	0.111	-	0.220	0.119	0.237	0.0046	0.012
12/15/2023	0.220	71,687	49.8	0.111	-	0.220	0.119	0.237	0.0046	0.012
12/16/2023	0.220	71,687	49.8	0.111	-	0.220	0.119	0.237	0.0046	0.012
12/17/2023	0.190	61,912	43.0	0.096	-	0.190	0.119	0.237	0.0046	0.042
12/18/2023	0.170	55,395	38.5	0.086	-	0.170	0.119	0.237	0.0046	0.062
12/19/2023	0.190	61,912	43.0	0.096	-	0.190	0.119	0.237	0.0046	0.042
12/20/2023	0.210	68,429	47.5	0.106	-	0.210	0.119	0.237	0.0046	0.022
12/21/2023	0.230	74,946	52.0	0.116	-	0.230	0.119	0.237	0.0046	0.002
12/22/2023	0.240	78,204	54.3	0.121	-	0.240	0.119	0.237	0.0046	-0.008
12/23/2023	0.240	78,204	54.3	0.121	-	0.240	0.119	0.237	0.0046	-0.008
12/24/2023	0.200	65,170	45.3	0.101	-	0.200	0.119	0.237	0.0046	0.032
12/25/2023	0.160	52,136	36.2	0.081	-	0.160	0.119	0.237	0.0046	0.072
12/26/2023	0.130	42,361	29.4	0.066	-	0.130	0.119	0.237	0.0046	0.102
12/27/2023	0.160	52,136	36.2	0.081	-	0.160	0.119	0.237	0.0046	0.072
12/28/2023	0.190	61,912	43.0	0.096	-	0.190	0.119	0.237	0.0046	0.042
12/29/2023	0.240	78,204	54.3	0.121	-	0.240	0.119	0.237	0.0046	-0.008
12/30/2023	0.260	84,721	58.8	0.131	-	0.260	0.119	0.237	0.0046	-0.028
12/31/2023	0.260	84,721	58.8	0.131	-	0.260	0.119	0.237	0.0046	-0.028
Total	**6.540**	**2,131,068**	**-**	**-**	**0**	**6.540**	**-**	**7.259**	**0.1423**	**0.577**

Notes:

(A) Lagged depletions in acre-feet calculated using Glover Method stream depletion model, based on Total Well Diversions in Table 1 Column (K)
(B) Lagged depletions in gallons, Column (A) * 325851.4
(C) Rate of lagged depletions in gallons per minute, Column (B) / (24 * 60)
(D) Rate of lagged depletions in cubic feet per second, Column (C) / (24 * 60)
(E) Days of free river at the well sites as determined by the water commissioner
(F) Lagged depletions in Column (A) after accounting for free river days in Column (E)
(G) Actual rate of replacement water released by City of Aurora to augment well depletions
(H) Actual volume of replacement water released by City of Aurora to augment well depletions
(I) Transit losses from confluence of Lake Creek and Arkansas River to well sites, Column (H) * 0.07% Division 2 accepted loss per river mile * 28 miles
(J) Column (H) - Column (F) - Column (I)

Table 3: BTB Annual Water Balance

Ruby Mountain Springs RMBH-2 and RMBH-3 Annual Water Balance

Dec-23

Applegate Group, Inc.

Month	Diversions from RMBH-2 Well WDID# 1105104 (AF)	Diversions from RMBH-3 Well WDID# 1105219 (AF)	Total Well Diversions (AF)	Total Lagged Depletions from RMBH-2 and RMBH-3 Wells (AF)	Days of Free River at RMBH-2 and RMBH-3 Well Sites	Required Replacements for Lagged Depletions after Free River Days (AF)	Replacement Water (AF)	Replacement Water Transit Losses to Well Sites (AF)	Net Deficit (-) /Credit (+) to Arkansas River (AF)
Jan-23	0.028	7.160	7.187	7.070	0.000	7.070	9.478	0.186	2.222
Feb-23	0.021	7.682	7.703	7.520	0.000	7.520	8.258	0.162	0.576
Mar-23	0.022	9.798	9.820	9.170	0.000	9.170	9.628	0.189	0.269
Apr-23	0.022	8.784	8.806	9.400	0.000	9.400	10.060	0.197	0.463
May-23	0.029	10.064	10.093	9.900	0.000	9.900	11.359	0.223	1.236
Jun-23	0.028	6.582	6.611	7.060	0.000	7.060	9.497	0.186	2.251
Jul-23	0.030	5.562	5.592	6.220	0.000	6.220	8.104	0.159	1.725
Aug-23	0.023	7.259	7.282	6.660	0.000	6.660	6.962	0.136	0.166
Sep-23	0.177	7.140	7.317	7.240	0.000	7.240	7.750	0.152	0.358
Oct-23	2.485	2.875	5.360	6.250	0.000	6.250	7.213	0.141	0.822
Nov-23	3.077	2.965	6.043	5.980	0.000	5.980	6.288	0.123	0.185
Dec-23	3.289	3.176	6.465	6.540	0.000	6.540	7.259	0.142	0.577
2023 Total	**9.23**	**79.05**	**88.28**	**89.01**	**0.00**	**89.01**	**101.86**	**2.00**	**10.85**

Notes:

(A) Monthly data taken from Table 1 Column (C)
(B) Monthly data taken from Table 1 Column (H)
(C) Monthly data taken from Table 1 Column (K)
(D) Monthly data taken from Table 2 Column (A)
(E) Monthly data taken from Table 2 Column (E)
(F) Monthly data taken from Table 2 Column (F)
(G) Monthly data taken from Table 2 Column (H)
(H) Monthly data taken from Table 2 Column (I)
(I) Monthly data taken from Table 2 Column (J)

Exhibit 6

2023 Accounting Upper Arkansas Water Conservancy District Supply and Demands

Applegate Group, Inc.

Water Resource Advisors for the West

January 30, 2024

Mr. James Culichia Esq.
Felt, Monson & Culichia, LLC
319 North Weber Street
Colorado Springs, CO 80903

Re: Blue Triton Brand Accounting of the Upper Arkansas Water Conservancy District Supply and Demands in 2023

Dear Jim:

The following information is being provided to you in response to the condition set forth in Section 4.28a of the Chaffee County Resolution No. 2021-58 which grants permit to conduct an activity of state interest in an area of State Interest (1041 Permit) for Blue Triton Brands, Inc (BTB). BTB is providing you with the following tables that summarize the augmentation of project depletions and storage capabilities of the Upper Arkansas Water Conservancy District (UAWCD) as required in condition 4.28a of Resolution No. 2021-58.

A summary of the total amount delivered by UAWCD for the replacement of BTB's well depletions each month is provided in **Table 1**. Replacements from UAWCD were made throughout the entirety of the year as UAWCD was the only replacement source for BTB in 2023. All water used for replacements from UAWCD in 2023 originated from Twin Lakes Reservoir.

The attached graphic, **Figure 1**, shows the amount of water available in three of UAWCD's reservoirs, Clear Creek Reservoir, Turquoise Reservoir and Twin Lakes Reservoir. **Figure 1** reports the storage amounts for each UAWCD reservoir that may make replacements for BTB as of January 1, 2024. We also provided a table that summarizes the end of month storage levels from January 2023 through December 2023, for all three UAWCD reservoirs.

If you have any questions concerning the information that we are providing in this letter report, please feel free to contact me at 303-452-6611 or ajaved@applegategroup.com.

Cordially,
Applegate Group, Inc.

Abdullah

Abdullah Javed
Water Resource Engineer

Enclosures

cc: Dan Swallow, Development Services Director, Chaffee County
Miles Cottom, Chaffee County (electronic copy)
Christie Barton, Chaffee County (electronic copy)
Tam Pham, BTB (electronic copy)
Steve Sims, Brownstein Hyatt Farber Schreck, LLP (electronic copy)
David Shohet, Monson, Cummins & Shohet, LLC (electronic copy)
AG File No. 06-151

N:\06151 Springs Investigations\Accounting - Chaffee County\Final Accounting Reports\Annual Reports\2024 Annual Reports\UAWCD Suppy Report\1041 report 2023 summary.docx

BTB Ruby Mountain Springs SWSP, Chaffee County, CO

UAWCD Accounting Records for Chaffee County

2023

Annual 2023 Report Summary

Table 1: UAWCD Augmentation Deliveries for BTB

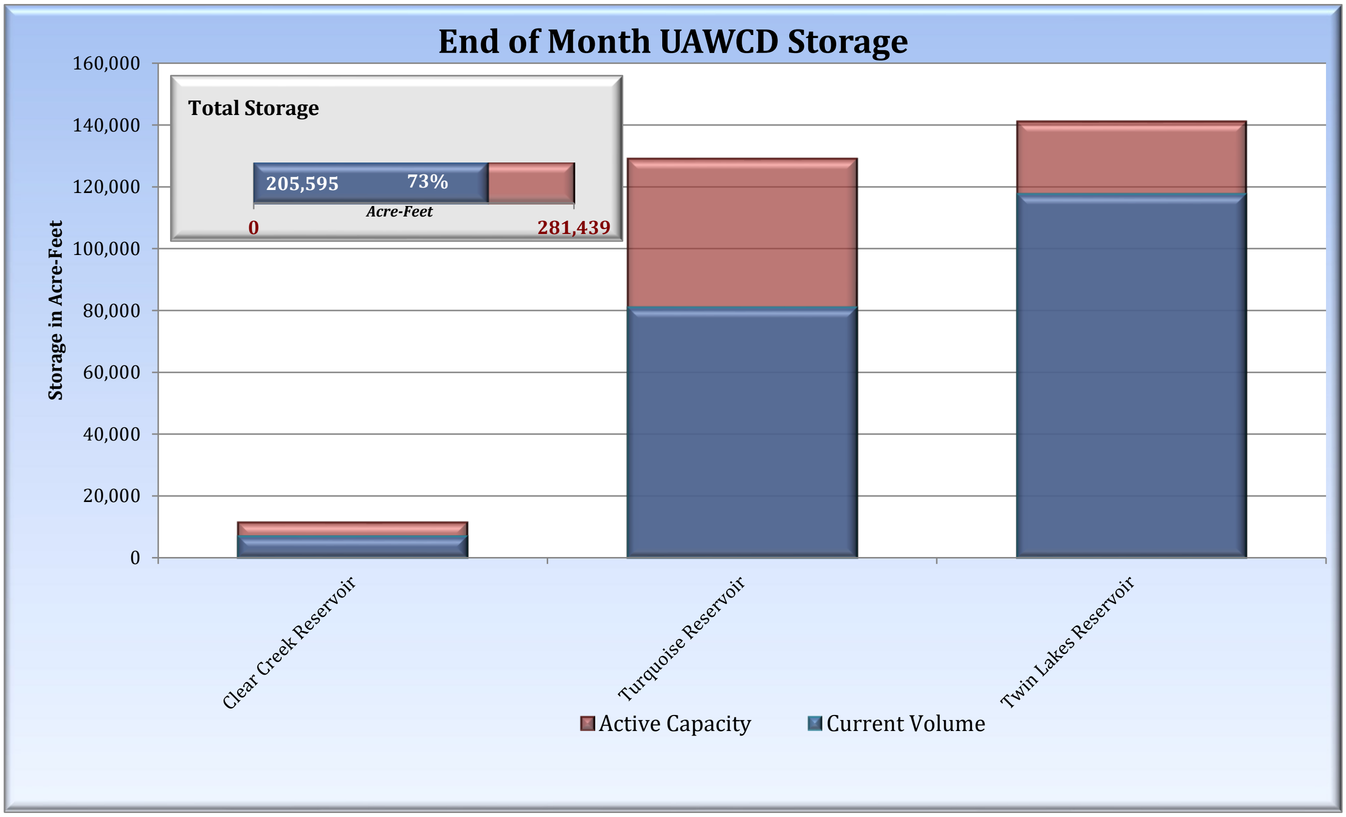
Month	Water Source (A)	Release total [ac-ft] (B)
Jan-23	Twin Lakes Reservoir	9.478
Feb-23	Twin Lakes Reservoir	8.258
Mar-23	Twin Lakes Reservoir	9.628
Apr-23	Twin Lakes Reservoir	10.060
May-23	Twin Lakes Reservoir	11.359
Jun-23	Twin Lakes Reservoir	9.497
Jul-23	Twin Lakes Reservoir	8.104
Aug-23	Twin Lakes Reservoir	6.962
Sep-23	Twin Lakes Reservoir	7.750
Oct-23	Twin Lakes Reservoir	7.213
Nov-23	Twin Lakes Reservoir	6.288
Dec-23	Twin Lakes Reservoir	7.259
TOTAL	**-**	**101.86**

Blue Triton Brand, Chaffee County, CO

UAWCD Accounting Records for Chaffee County

2023

Figure 1: Storage as of January 1, 2024



End of Month UAWCD Storage in Acre-Feet

Account	Active Capacity	Current Volume	Excess Capacity	Percent of Active Capacity
Clear Creek Reservoir	11,439	6,989	4,450	61%
Turquoise Reservoir	129,000	80,952	48,048	63%
Twin Lakes Reservoir	141,000	117,654	23,346	83%
TOTAL	**281,439**	**205,595**	**75,844**	**73%**

Blue Triton Brand, Chaffee County, CO

Storage Supply Accounting Records for Chaffee County

2023

Annual Summary

End of Month Reservoir Storage in Acre-Feet

Month	Clear Creek Reservoir	Turquoise Reservoir	Twin Lakes Reservoir
Jan-23	8,102	76,790	98,911
Feb-23	8,518	63,849	100,342
Mar-23	8,618	63,303	100,226
Apr-23	8,570	56,806	101,429
May-23	8,443	96,667	110,141
Jun-23	9,115	124,385	121,939
Jul-23	6,928	114,487	128,941
Aug-23	6,020	95,729	117,353
Sep-23	6,016	83,832	125,355
Oct-23	5,934	82,811	126,250
Nov-23	6,329	81,762	121,164
Dec-23	6,989	80,952	117,654