

WATER RESOURCES REPORT

for

***William Guman and Associates, Ltd.
22755 McDaniels Road
Zindorf II Subdivision***

EPC Parcel #: 3400000295

April 2022

Prepared By:



ZINDORF II SUBDIVISION
EPC Parcel # 3400000295

WATER RESOURCES REPORT

April 2022

Prepared for:

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1.0 INTRODUCTION AND EXECUTIVE SUMMARY

The purpose of this report is to address the specific water needs of a proposed subdivision of Parcel # 3400000295 in El Paso County, CO.

EXECUTIVE SUMMARY: The water rights and augmentation plan in place for the existing parcel are adequate to meet the needs of four (4) lots proposed for the subdivision on a 300-year basis.

2.0 PROJECTED LAND USES

2.1 Projected Land Uses

This report pertains to the existing 40-acre parcel that is proposed to be divided into four (4) lots. Please refer to the *Land Use Exhibit* in **Appendix A** depicting the proposed subdivision.

3.0 WATER NEEDS AND PROJECTED DEMANDS

3.1 Water Demand Summary

It is anticipated that proposed four residential lots, each consisting of approximately 9.74 acres per lot, will use approximately 0.335 AF/year of water for each lot, bringing the total amount of water used per year to 1.34 AF/year. This estimate is based information provided in Chapter 8 of the *El Paso County Land Development Code* as well as *Section 8* of the *Findings and Order* located in **Appendix C**. Water demands and wastewater loads are shown Table 3-1 below:

Table 3-1: Summary of Expected Water Demands & Wastewater Loads

Water						Wastewater
# of SFEs	Annual Indoor Use 0.26 (AF/YR/SFE)	Average Daily Indoor Use (GPD)	Irrigation 0.0566 (AF/1,000 SF)	Domestic Watering 0.011 (AF/Horse/Year)	Total Indoor, Watering, & Irrigation (AF)	ADF (@ 90% Indoor Use) (GPD)
4	Note 1 1.040	928	Note 2 0.300	0.000	1.34	836

Note 1: Per 8.4.7(B)(7)(d) of the EPC Land Development Code

Note 2: Assuming 1,325 square feet of irrigation per lot

3.2 Unit Water User Characteristics

Unit water user characteristics are counted on a *single-family equivalent* (SFE) basis. All single-family homes are counted as one SFE, and user characteristics were based on information provided in the *El Paso County Land Development Code*, Chapter 8.

3.3 Demand versus Supply

An overall demand of 1.34 acre-feet for the proposed subdivision is less than the amount of supply listed in the decrees, determinations, and *Findings of Fact* (provided in **Appendix C**) and is further discussed in Section 4.0 of this report.

4.0 WATER RIGHTS AND SUPPLY

4.1 Water Rights

Water rights, determinations, and replacement plan have been applied for as shown in **Appendix C**. Table 4-1 below summarizes the information from said water rights and pending determinations.

Table 4-1: Water Rights Summary

Land Formation/ Aquifer	Determination	Tributary Status	Area	Decreed Water 100-Year	Annual Allocation 100-Year	Annual Allocation 300-Year
			(Acres)	(AF)	(AF/Year)	(AF/Year)
Dawson	-	-	-	-	-	-
Denver	-	-	-	-	-	-
Arapahoe	TBD	NNT	40	578.00	5.78	1.93
Laramie-Fox Hills	TBD	NT	40	1,176.00	11.76	3.92
Total Legal Supply					17.54	5.85
					<i>100-Year</i>	<i>300-Year</i>

Beneficial Uses: *Domestic Indoor
Indoor & Outdoor Irrigation, Agricultural, Livestock, Commercial,
Industrial, Fish and Wildlife, Firefighting, and Replacement*

Note that only the Arapahoe formation is to be used for the proposed lots in this subdivision. According to the *Findings of Fact* located in **Appendix C**, the following conditions are allowed for the subject property:

- Water in the Arapahoe may be withdrawn through the existing well (Permit #227502, as well as three (3) additional wells, allowing up to four (4) parcels

to be developed on the subject property. Existing well permit #227502 shall be repermited to operate pursuant to this replacement plan **Appendix A**.

- There shall be one (1) Arapahoe aquifer well per lot.
- Each well must provide water to a house on the same lot, ensuring that during pumping, return flows from septic systems alone will always equal or exceed stream depletions in the same year.
- It is not necessary to restrict the type of use to which the Arapahoe water pumped (pursuant to the augmentation plan) is put.
- The acre-feet of water each Arapahoe aquifer well is allowed to divert on an annual basis shall be calculated by dividing the number of lots into the number 1.34 AF, but in no event shall exceed 0.335 acre-foot per well per year.

4.2 Adequacy of Water Rights

Current water rights are adequate for buildout demands of four (4) lots and meet 2040 and 2060 buildout projections on a 300-year basis.

*According to the application for a determination of water right within a designated groundwater basin (Arapahoe Aquifer), application for a determination of a water right within a designated groundwater basin (LFH Aquifer), and application for a replacement plan within a designated ground water basin located in **Appendix C**:*

- There are 1.93 AF/year available on a 300-year supply basis out of the Arapahoe Formation, which is greater than the estimated annual demand of 1.34 AF/year for all four (4) Arapahoe wells.
- Assuming a 0.26 AF/yr domestic use per resident with 90% return flows through the septic system per resident, this results in a 0.234 AF/yr replacement flow back through the septic system per resident, or 0.936 AF/year total.
- The estimated maximum depletion to the alluvial aquifer from 300-years of pumping from the Arapahoe formation at 1.34 AF/year results is 0.929 AF/year by year 300. The estimated annual return flows from each residence is in excess of the estimated depletions to the alluvium as shown in the Replacement Plan Application included in **Appendix C**

Conclusion:

The current water rights and augmentation plan in place are adequate to meet the estimated overall demand and resulting alluvial depletions of 0.929 acre-feet for four (4) lots.

4.3 Description of Current Water Rights

The subject area's current water rights involve non-renewable supplies in the Denver Basin, further discussed below.

Non-Renewable Denver Basin Supply

The Denver Basin is a vast, deep-rock aquifer that stretches from southeast of Colorado Springs to Greeley, and from the base of the front range to the eastern end of Elbert County. Rights granted in the Denver basin are based on the ownership of the surface property – the larger the parcel, the larger the allocation. This water is much deeper than typical residential wells, ranging up to 2,650 feet deep.

Denver Basin water is considered finite and therefore non-renewable. In the subject area, there are four main formations that make up the Denver Basin: Dawson, Denver, Arapahoe, and Laramie-Fox Hills (LFH), described from shallowest to deepest.

The subject property is applying for determinations in the Arapahoe (NNT) and LFH (NT) formations, which total 5.85 annual acre-feet on a 300-year basis, and 17.54 annual acre-feet on a 100-year basis.

5.0 WATER SYSTEM FACILITIES AND PHYSICAL SUPPLY

5.1 Source of Supply

Supply for the four (4) lots will be met with future or existing wells completed in the Arapahoe aquifer. There is an existing well (Permit #227502) that is currently drilled into the Arapahoe formation which will be re-permitted to operate pursuant to the proposed replacement plan. These wells will be drilled, screened, test-pumped, and completed accordance with the Colorado Division of Water Resources rules and regulations.

5.2 Water Treatment

Water in the existing well was tested in July of 2021 for constituents required by El Paso County regulations for a confined aquifer. Any desired treatment of existing and future wells will rely on the individual homeowners as this is not considered a *Community System* by the Colorado Department of Public Health and Environment.

5.3 Water Storage

Water storage (other than potential individual cisterns) will not be constructed. Therefore, a central water system with treatment and fire-flow capabilities will not be provided. The residents of each subdivided lot will be made aware of this since it will be included on the subdivision plat.

5.4 Distribution, Pumping, and Transmission Lines

Since there is no central water system proposed for this subdivision, no distribution, pumping, or transmission lines will be constructed.

5.5 Water Quality

The water quality in the Arapahoe aquifer in this area has typically been suitable for residential potable use. Water samples were obtained from the existing well

(well permit #227502) constructed via an exterior water tap serving the existing residence (22755 McDaniels Road). Water samples were obtained from this tap on July 16th, 2021, with water quality testing performed by Colorado Analytical Laboratories and ACZ Laboratories, per the El Paso County Land Development Code section 8.4.7(B). Final results from this water quality testing were received on August 26th, 2021, and can be found in **Appendix D**. All results were found to be below primary and secondary Maximum Contaminant Limits (MCLs).

Because of the absence of any and all evidence of fecal contamination in the form of E.Coli or Total Coliform, or that all sampled and analyzed constituents were below all primary and secondary standards the proposed water source emanating from the Arapahoe Aquifer is deemed safe for public consumption.

6.0 EL PASO COUNTY MASTER PLANNING ELEMENTS

6.1 County Water Master Plan 2040 and 2060 Projections

The subject property lies within the El Paso County Water Master Planning area, Region #6.

6.2 Buildout (Including 2040 and 2060 Buildout):

Expected buildout of the subject property are four (4) total lots, featuring 9.74 Acres per lot on average. Demands for the entire subdivision are listed in Section 3.0 of this report.

6.3 Description of Long-Term Planning and Future Sources of Supply

Per El Paso County criteria, the 300-year supply of water for the subject property appears to be more than adequate for full buildout, which would include both the 2040 and 2060 scenarios. However, the proposed supply in the Arapahoe aquifer is based on non-renewable sources.

If needed beyond the 300-year supply, the subdivision has nontributary water rights in the Laramie-Fox Hills formations. Please refer to the *Plan for Augmentation* in **Appendix C**.

6.4 Water System Interconnects

The closest source for a potential interconnect is the Town of Ellicot – approximately 1.4 miles to the southeast.

It is not anticipated (and Ellicot has not been contacted) that an interconnect is needed or warranted.

7.0 CONCLUSION

The subject property has adequate water supply to meet the needs of the proposed subdivision on a 300-year basis.

Appendix A

Appendix B

WATER SUPPLY INFORMATION SUMMARY

Section 30-28-133,(d), C.R.S. requires that the applicant submit to the County, "Adequate evidence that a Water supply that is sufficient in terms of quantity, quality, and dependability will be available to ensure an adequate supply of water"

1. NAME OF DEVELOPMENT AS PROPOSED <u>Zindorf II Subdivision</u>			
2. LAND USE ACTION <u>Minor Subdivision</u>			
3. NAME OF EXISTING PARCEL AS RECORDED <u>22755 MCDANIELS RD</u>			
SUBDIVISION <u>See Above</u>		FILING <u>N/A</u>	BLOCK <u>N/A</u> Lot <u>N/A</u>
4. TOTAL ACERAGE <u>40</u>	5. NUMBER OF LOTS PROPOSED <u>4</u>	PLAT MAPS ENCLOSED <input checked="" type="checkbox"/>	
6. PARCEL HISTORY - Please attach copies of deeds, plats, or other evidence or documentation. (In submittal package)			
A. Was parcel recorded with county prior to June 1, 1972? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO			
B. Has the parcel ever been part of a division of land action since June 1, 1972? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO			
If yes, describe the previous action <u>Platted but not recorded.</u>			
7. LOCATION OF PARCEL - Include a map delineating the project area and tie to a section corner. (In submittal)			
<u>NE 1/4</u> OF <u>NE 1/4</u> SECTION 11 TOWNSHIP <u>14</u> <input type="checkbox"/> N <input checked="" type="checkbox"/> S RANGE <u>63</u> <input type="checkbox"/> E <input checked="" type="checkbox"/> W			
PRINCIPAL MERIDIAN: <input checked="" type="checkbox"/> 6TH <input type="checkbox"/> N.M. <input type="checkbox"/> UTE <input type="checkbox"/> COSTILLA			
8. PLAT - Location of all wells on property must be plotted and permit numbers provided.			
Surveyors plat <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		If not, scaled hand -drawn sketch Y <input type="checkbox"/> NO	
9. ESTIMATED WATER REQUIREMENTS - Gallons per Day or Acre Foot per Year		10. WATER SUPPLY SOURCE	
HOUSEHOLD USE # <u>1</u> <u>4</u> of units <u>0.260</u> AF/SFE/YR <u>1.040</u> AF		<input checked="" type="checkbox"/> EXISTING <input checked="" type="checkbox"/> DEVELOPED <input checked="" type="checkbox"/> NEW WELLS WELLS SPRING WELL PERMIT NUMBERS <u>227305</u>	
COMMERCIAL USE <u>0</u> SF <u>-</u> GPD <u>-</u> AF		Proposed Aquifers - (Check One) <input type="checkbox"/> Alluvial <input checked="" type="checkbox"/> Upper Arapahoe <input type="checkbox"/> Upper Dawson <input type="checkbox"/> Lower Arapahoe <input type="checkbox"/> Lower Dawson <input type="checkbox"/> Laramie Fox Hills <input type="checkbox"/> Denver <input type="checkbox"/> Dakota <input type="checkbox"/> Other	
IRRIGATION <u>2</u> <u>0.0566</u> AF/1000SF <u>268</u> GPD <u>0.300</u> AF		WATER COURT DECREE CASE NUMBERS <u>Existing Well Permit #227305</u> <u>Replacement Plan No. 4252-RP</u> <u>Determination No. 4251-BD</u> <u>Determination No. 4252-BD</u>	
ANIMAL WATERING <u>0</u> Horses <u>0.011</u> AF/Horse/Year <u>0</u> AF			
TOTAL <u>1,196</u> GPD <u>1.34</u> AF *			
1) Per 8.4.7 (B)(7)(d) of the EPC Land Development Code 2) Assuming 1,325 ft ² of irrigatable land per residence		NAME: <u>N/A</u> LETTER OF COMMITMENT FOR SERVICE <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	
11. ENGINEER'S WATER SUPPLY REPORT <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO If yes, please forward with this form. (This may be required before our review is completed)			
12. TYPE OF SEWAGE DISPOSAL SYSTEM			
<input checked="" type="checkbox"/> SEPTIC TANK/LEACH FIELD		<input type="checkbox"/> CENTRAL SYSTEM - DISTRICT NAME:	
<input type="checkbox"/> LAGOON		<input type="checkbox"/> VAULT - LOCATION SEWAGE HAULED TO:	
<input type="checkbox"/> ENGINEERED SYSTEM (Attach a copy of engineering design)		<input type="checkbox"/> OTHER:	

Appendix C

**COLORADO GROUND WATER COMMISSION
FINDINGS AND ORDER**

IN THE MATTER OF AN APPLICATION FOR A DETERMINATION OF A RIGHT TO AN ALLOCATION OF
GROUNDWATER IN THE UPPER BLACK SQUIRREL CREEK DESIGNATED GROUNDWATER BASIN

DETERMINATION NO.: 4252-BD

AQUIFER: Arapahoe

APPLICANT: Z Investments, LLC

In compliance with section 37-90-107(7), C.R.S., and the Designated Basin Rules, 2 CCR 410-1, Z Investments, LLC (Applicant) submitted an application to the Colorado Ground Water Commission (Commission) for a determination of a right to an allocation of designated groundwater from the Arapahoe Aquifer.

FINDINGS

1. The application was received by the Commission on July 13, 2021.
2. The Applicant requests a determination of right to an allocation of designated groundwater (Determination) in the Arapahoe aquifer (Aquifer) underlying 40 acres, described as the NE 1/4 of the NE 1/4 of Section 11, Township 14 South, Range 63 West, 6th P.M., in El Paso County (Overlying Land). According to a Nontributary Groundwater Landownership Statement dated June 28, 2021, attached hereto as Exhibit A, the Applicant owns the 40 acres of land, which are further described in said Ownership Statement, and claims control of the right to the groundwater in the Aquifer underlying the land.
3. The Overlying Land is located within the boundaries of the Upper Black Squirrel Creek Designated Groundwater Basin and within the Upper Black Squirrel Creek Ground Water Management District. The Commission has jurisdiction over the designated groundwater that is the subject of this Determination.
4. The Commission's Staff has evaluated the application relying on the claims to control of the groundwater in the Aquifer underlying the Overlying Land made by the Applicant.
5. The Applicant intends to apply the groundwater in the Aquifer underlying the Overlying Land to the following beneficial uses: domestic, irrigation (indoor and outdoor), agricultural, livestock, replacement, commercial, industrial, and fish and wildlife. The Applicant's proposed place of use of the groundwater in the Aquifer underlying the Overlying Land is the above described 40 acres of Overlying Land.
6. Pursuant to section 37-90-107(7)(a), and in accordance with the Designated Basin Rules, the Commission shall allocate the groundwater in the Aquifer underlying the Overlying Land on the basis of the ownership of the Overlying Land.
7. The amount of water in storage in the Aquifer underlying the 40 acres of Overlying Land claimed by the Applicant is 578 acre-feet. This determination was based on the following as specified in the Designated Basin Rules.
 - a. The average specific yield of those saturated aquifer materials containing sufficient water that can be drained by gravity and placed to beneficial use is 17 percent.

- b. The average thickness of those saturated aquifer materials containing sufficient water that can be drained by gravity and placed to beneficial use is 85 feet.
8. A review of the records in the Office of the State Engineer has disclosed that none of the groundwater in the Aquifer underlying the Overlying Land has been either previously determined to be allocated by the Commission, has been permitted for withdrawal by large capacity wells that have rights that were initiated prior to November 19, 1973 that are subject to section 37-90-107(7)(b), or has been permitted for withdrawal by existing small capacity wells withdrawing water under permits issued pursuant to section 37-90-105, C.R.S. The amount of designated groundwater in the Aquifer underlying the Overlying Land that is available for allocation in this Determination is 578 acre-feet.
9. Pursuant to section 37-90-107(7)(c)(III), an approved determination of a right to an allocation shall be considered a final determination of the amount of groundwater so determined; except that the Commission shall retain jurisdiction for subsequent adjustment of such amount to conform to the actual local aquifer characteristics from adequate information obtained from well drilling or test holes.
10. Pursuant to section 37-90-107(7)(d), the Commission has authority to issue well permits pursuant to subsection 107(7) (i.e. permits for large capacity wells) for the withdrawal of designated groundwater from the Aquifer. Pursuant to section 37-90-107(7)(a) the Commission shall adopt the necessary rules to carry out the provisions of subsection (7). Pursuant to section 37-90-111(h), C.R.S., the Commission is empowered to adopt rules necessary to carry out the provisions of Article 90 of Title 37. In accordance with that authority, the Commission has adopted the Rules and Regulations for the Management and Control of Designated Ground Water (2 CCR 410-1) ("Designated Basin Rules", or "Rules").
11. Large capacity well permits issued pursuant to section 37-90-107(7) are subject to the following provisions of statute and the Designated Basin Rules.
 - a. Pursuant to section 37-90-107(7)(a) well permits issued pursuant to subsection 107(7) shall allow withdrawals on the basis of an aquifer life of one hundred years. The 578 acre-feet of water in the Aquifer underlying the Overlying Land available for allocation in this Determination, if permitted for withdrawal by large capacity wells on the basis of an aquifer life of one hundred years, would result in an allowed average annual amount of withdrawal of 5.78 acre-feet per year.
 - b. Any amounts of groundwater in the Aquifer allocated in this Determination that are permitted for withdrawal pursuant to section 37-90-105, by small capacity well permits issued after the issuance of this Determination reduce the amount of water, and the allowed average annual amount of withdrawal, that may be withdrawn by wells permitted pursuant to section 37-90-107(7).
 - c. In accordance with Rule 5.3.6 of the Designated Basin Rules, it has been determined that withdrawal of groundwater from the Aquifer underlying the Overlying Land will, within one hundred years, deplete the flow of a natural stream or an alluvial aquifer at an annual rate greater than one-tenth of one percent of the annual rate of withdrawal and, therefore, the groundwater in the Aquifer underlying the Overlying Land is considered to be not-nontributary groundwater as defined in Rule 4.2.23 of the Designated Basin Rules. Also, the location of the land claimed by the Applicant is closer than one mile from the Aquifer contact with the alluvium. Withdrawal of water from the Aquifer underlying the

Overlying Land would impact the alluvial aquifer of the Upper Black Squirrel Creek Designated Groundwater Basin, which has been determined to be over-appropriated. Commission approval of a replacement plan pursuant to section 37-90-107.5, C.R.S. and Rule 5.6 of the Designated Basin Rules, that provides for the replacement of the actual depletion to the alluvial aquifer and is adequate to prevent any material injury to existing water rights of other appropriators, is required prior to approval of well permits for wells to be located on this land area to withdraw the groundwater in the Aquifer underlying the Overlying Land. Pursuant to the Rules the replacement plan shall provide for the depletion of the alluvial water for the first 100 years due to all previous pumping, and if pumping continues beyond 100 years shall replace actual impact until pumping ceases, assuming water table conditions in the Aquifer.

12. Pursuant to section 37-90-105(1), the State Engineer has the authority to approve small capacity well permits. While water withdrawn from the Aquifer from beneath the Overlying Land by small capacity wells may consist of the groundwater allocated herein, the Commission recognizes that in approving small capacity permits the State Engineer is not bound by the terms and conditions of this Determination, and may approve small capacity permits based on standards and with such conditions as the State Engineer considers appropriate.
13. The ability of wells permitted to withdraw the authorized amount of water from this nonrenewable Aquifer may be less than the one hundred years upon which the amount of water in the Aquifer is allocated, due to anticipated water level declines.
14. On September 13, 2021, in accordance with Rule 9.1 of the Designated Basin Rules, written recommendations concerning this application were requested from the Upper Black Squirrel Creek Ground Water Management District. Written recommendations from the District were received on October 7, 2021.
15. In accordance with sections 37-90-107(7)(c)(II) and 37-90-112, C.R.S., the application was published in the Ranchland News newspaper on September 23, 2021 and September 30, 2021. No objections to the application were received within the time limit set by statute.

ORDER

In accordance with section 37-90-107(7) and the Designated Basin Rules, the Commission hereby determines a right to an allocation of designated groundwater in the Arapahoe Aquifer underlying 40 acres of land, generally described as the NE 1/4 of the NE 1/4 of Section 11, Township 14 South, Range 63 West, 6th P.M., further described in Exhibit A, subject to the following conditions.

16. The amount (i.e. volume) of water in the Aquifer underlying the 40 acres of Overlying Land allocated herein is 578 acre-feet (Underlying Groundwater).
17. The amount (i.e. volume) of Underlying Groundwater allocated herein shall be considered final, except that the Commission shall retain jurisdiction for subsequent adjustment of such amount to conform to the actual local aquifer characteristics from adequate information obtained from well drilling or test holes, if such information indicates that the initial estimate of the amount of Underlying Groundwater in the Aquifer was incorrect.

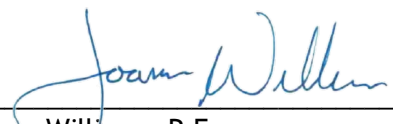
18. Approval of this Determination meets the requirements of section 37-90-107(7)(d)(II), that requires a determination of groundwater to be withdrawn by a well be made prior to the granting of a well permit pursuant to section 37-90-107(7).
19. Well permits issued pursuant to section 37-90-107(7), (i.e. large capacity wells) and this Determination are subject to the following conditions.
 - a. The total amount of Underlying Groundwater that may be withdrawn from the Aquifer by all large capacity wells permitted pursuant to this Determination may not exceed a volume of 578 acre-feet, less any amount of the Underlying Groundwater allocated herein permitted to be withdrawn by small capacity wells issued permits pursuant to section 37-90-105 after the issuance of this Determination. The amounts of water permitted to be withdrawn by such small capacity wells shall be considered to be one-hundred times the annual withdrawals permitted to be withdrawn by those wells.
 - b. The allowed average annual amount of withdrawal by any large capacity well (or well field) permitted to withdraw the allocated water shall be equal to the volume of water permitted to be withdrawn by that well (or well field) divided by one-hundred years.
 - c. The allowed maximum annual amount of withdrawal by any large capacity well (or well field) permitted to withdraw the allocated water may exceed the allowed average annual amount of withdrawal allowed by the well permit(s) as long as the total volume of water withdrawn by such well(s) does not exceed the product of the number of years since the date(s) of issuance of the well permit(s) times the allowed average annual amount of withdrawal allowed by the well permit(s).
 - d. The Applicant may pump the allowed average annual amount of withdrawal and the allowed maximum annual amount of withdrawal from one or more wells of a well field in any combination, so long as the total combined withdrawal of the wells does not exceed the amounts described in this Order.
 - e. Commission approval of a replacement plan, that provides for the replacement of the actual depletion to the alluvial aquifer and is adequate to prevent any material injury to existing water rights of other appropriators in the alluvial aquifer, is required prior to approval of well permits that allow the withdraw of the Underlying Groundwater. The replacement plan shall provide for the depletion of the alluvial water for the first 100 years due to all previous pumping, and if pumping continues beyond 100 years shall replace actual impact until pumping ceases, assuming water table conditions in the Aquifer.
 - f. The use of the Underlying Groundwater shall be limited to the following beneficial uses: domestic, irrigation (indoor and outdoor), agricultural, livestock, replacement, commercial, industrial, and fish and wildlife. The place of use of the Underlying Groundwater shall be limited to the above described 40 acres of Overlying Land. The Underlying Groundwater that is the subject of this Determination may be reused and successively used to extinction to the extent dominion and control over the water is maintained and its volume can be distinguished from the volume of any stream system into which it is introduced to the satisfaction of the Commission. The Underlying Groundwater is located within the Upper Black Squirrel Creek Ground Water Management District where local District rules apply which may further limit the withdrawal and use of the subject designated groundwater.

- g. The wells must be located on the above described 40 acres of Overlying Land.
 - h. No well shall be located within 600 feet of any existing large-capacity well in the same Aquifer unless a Waiver of Claim of Injury is obtained from the owner of the existing well or unless the Commission, after a hearing, finds that circumstances in a particular instance warrant that a well may be permitted without regard to this limitation.
 - i. The wells must be constructed to withdraw water from only the Arapahoe Aquifer.
 - j. The entire depth of each well must be geophysically logged prior to installing the casing in the same manner as set forth in Rule 9 of the Statewide Nontributary Ground Water Rules, 2 CCR 402-7.
 - k. A totalizing flow meter or other Commission approved measuring device shall be installed on each well and maintained in good working order by the well owner. Annual diversion records shall be collected and permanently maintained by the well owner and submitted to the Commission and the Upper Black Squirrel Creek Ground Water Management District upon request.
 - l. The well shall be marked in a conspicuous place with this determination number, the well permit number, and the name of the Aquifer. The well owner shall take necessary means and precautions to preserve these markings.
20. A copy of this Determination shall be recorded by the Applicant in the public records of the county in which the Overlying Land is located so that a title examination of the above described 40 acres of Overlying Land area, or any part thereof, shall reveal the existence of this Determination.
21. The right to an allocation of designated groundwater determined herein is a vested property right with specific ownership. Some or all of the water right may be transferred independent of the land under which the right originated. Any action taken that is intended to convey, transfer, and/or sell the subject water right shall explicitly identify this Determination number, the specific Aquifer, and the total amount (i.e. volume) of the right that is being conveyed.

Dated this 3rd day of November, 2021.



Kevin G. Rein, P.E.
Executive Director
Colorado Ground Water Commission

By: 
Joanna Williams, P.E.
Water Resource Engineer

Form no. **DIVISION OF WATER RESOURCES**GWS-1 **DEPARTMENT OF NATURAL RESOURCES**(1/2020) **1313 Sherman St, Room 821, Denver, CO 80203****(303) 866-3581, www.colorado.gov/water, dwrpermitsonline@state.co.us****NONTRIBUTARY GROUNDWATER LANDOWNERSHIP STATEMENT**

This form is to be submitted with applications for the following, when the applicant is the owner of the overlying land.

1) A well permit to withdraw groundwater from the Dawson, Denver, Arapahoe or Laramie-Fox Hills aquifers, or other aquifer the applicant claims contains nontributary groundwater, outside of a Designated Groundwater Basin subject to section 37-90-137(4), C.R.S., except when the right to withdraw the groundwater has been determined by a valid decree; OR

2) A determination of water right in the Dawson, Denver, Arapahoe or Laramie-Fox Hills aquifers, or a well permit to withdraw groundwater from those aquifers that are subject to Designated Basin Rule 5.4, within a Designated Groundwater Basin.

NOTE: Form submittal instructions can be found on our website Colorado.gov/water. See instructions on the reverse of this form. Type or print in black or blue ink.

1. APPLICANT INFORMATION			
Name of Applicant Z Investments, LLC			
Mailing Address PO Box 50005	City Colorado Springs	State Colorado	Zip Code 80949
Telephone Number (include area code) 719-332-0599		Email greg@zinvestments.net	
2. AQUIFER Arapahoe			
3. CLAIM OF OWNERSHIP – I hereby claim that I am the owner of the following described property, as evidenced by the attached copy of a deed recorded in the county in which the property is located.			
Number of acres: <u>40</u> in the county of: <u>El Paso</u>			
described as follows (insert legal description).			
<u>NE1/4 of the NE1/4 of Section 11, Township 14 South, Range 63 West of the 6th P.M.</u>			
<u></u>			
<u></u>			
<u></u>			
<u></u>			
- I further claim that the right to withdraw the groundwater in the aquifer underlying the above described property has not been reserved by another, nor has consent been given to another for the right to its withdrawal.			
4. THE APPLICANT MUST PROVIDE – a Verification of Notice of Application (form no. GWS-43) (see instructions for exceptions).			
5. SIGNATURE – Sign or enter name(s) of applicant(s) or authorized agent. The making of false statements herein constitutes perjury in the second degree, which is punishable as a class 1 misdemeanor pursuant to C.R.S. 24-4-104(13)(a). I have read the statements herein, know the contents thereof, and state that they are true to my knowledge.			
Signature: <u>Greg Zindorf</u>		Date: <u>06-28-2021</u>	
Print name and title: Greg Zindorf, Managing Member			

**COLORADO GROUND WATER COMMISSION
FINDINGS AND ORDER**

IN THE MATTER OF AN APPLICATION FOR A DETERMINATION OF A RIGHT TO AN ALLOCATION OF
GROUNDWATER IN THE UPPER BLACK SQUIRREL CREEK DESIGNATED GROUNDWATER BASIN

DETERMINATION NO.: 4251-BD

AQUIFER: Laramie-Fox Hills

APPLICANT: Z Investments, LLC

In compliance with section 37-90-107(7), C.R.S., and the Designated Basin Rules, 2 CCR 410-1, Z Investments, LLC (Applicant) submitted an application to the Colorado Ground Water Commission (Commission) for a determination of a right to an allocation of designated groundwater from the Laramie-Fox Hills Aquifer.

FINDINGS

1. The application was received by the Commission on July 13, 2021.
2. The Applicant requests a determination of right to an allocation of designated groundwater (Determination) in the Laramie-Fox Hills aquifer (Aquifer) underlying 40 acres, described as the NE 1/4 of the NE 1/4 of Section 11, Township 14 South, Range 63 West, 6th P.M., in El Paso County (Overlying Land). According to a Nontributary Groundwater Landownership Statement dated June 28, 2021, attached hereto as Exhibit A, the Applicant owns the 40 acres of land, which are further described in said Ownership Statement, and claims control of the right to the groundwater in the Aquifer underlying the land.
3. The Overlying Land is located within the boundaries of the Upper Black Squirrel Creek Designated Groundwater Basin and within the Upper Black Squirrel Creek Ground Water Management District. The Commission has jurisdiction over the designated groundwater that is the subject of this Determination.
4. The Commission's Staff has evaluated the application relying on the claims to control of the groundwater in the Aquifer underlying the Overlying Land made by the Applicant.
5. The Applicant intends to apply the groundwater in the Aquifer underlying the Overlying Land to the following beneficial uses: domestic, irrigation (indoor and outdoor), agricultural, livestock, replacement, commercial, industrial, and fish and wildlife. The Applicant's proposed place of use of the groundwater in the Aquifer underlying the Overlying Land is the above described 40 acres of Overlying Land.
6. Pursuant to section 37-90-107(7)(a), and in accordance with the Designated Basin Rules, the Commission shall allocate the groundwater in the Aquifer underlying the Overlying Land on the basis of the ownership of the Overlying Land.
7. The amount of water in storage in the Aquifer underlying the 40 acres of Overlying Land claimed by the Applicant is 1,170 acre-feet. This determination was based on the following as specified in the Designated Basin Rules.
 - a. The average specific yield of those saturated aquifer materials containing sufficient water that can be drained by gravity and placed to beneficial use is 15 percent.

- b. The average thickness of those saturated aquifer materials containing sufficient water that can be drained by gravity and placed to beneficial use is 195 feet.
8. A review of the records in the Office of the State Engineer has disclosed that none of the groundwater in the Aquifer underlying the Overlying Land has been either previously determined to be allocated by the Commission, has been permitted for withdrawal by large capacity wells that have rights that were initiated prior to November 19, 1973 that are subject to section 37-90-107(7)(b), or has been permitted for withdrawal by existing small capacity wells withdrawing water under permits issued pursuant to section 37-90-105, C.R.S. The amount of designated groundwater in the Aquifer underlying the Overlying Land that is available for allocation in this Determination is 1,170 acre-feet.
9. Pursuant to section 37-90-107(7)(c)(III), an approved determination of a right to an allocation shall be considered a final determination of the amount of groundwater so determined; except that the Commission shall retain jurisdiction for subsequent adjustment of such amount to conform to the actual local aquifer characteristics from adequate information obtained from well drilling or test holes.
10. Pursuant to section 37-90-107(7)(d), the Commission has authority to issue well permits pursuant to subsection 107(7) (i.e. permits for large capacity wells) for the withdrawal of designated groundwater from the Aquifer. Pursuant to section 37-90-107(7)(a) the Commission shall adopt the necessary rules to carry out the provisions of subsection (7). Pursuant to section 37-90-111(h), C.R.S., the Commission is empowered to adopt rules necessary to carry out the provisions of Article 90 of Title 37. In accordance with that authority, the Commission has adopted the Rules and Regulations for the Management and Control of Designated Ground Water (2 CCR 410-1) ("Designated Basin Rules", or "Rules").
11. Large capacity well permits issued pursuant to section 37-90-107(7) are subject to the following provisions of statute and the Designated Basin Rules.
 - a. Pursuant to section 37-90-107(7)(a) well permits issued pursuant to subsection 107(7) shall allow withdrawals on the basis of an aquifer life of one hundred years. The 1,170 acre-feet of water in the Aquifer underlying the Overlying Land available for allocation in this Determination, if permitted for withdrawal by large capacity wells on the basis of an aquifer life of one hundred years, would result in an allowed average annual amount of withdrawal of 11.7 acre-feet per year.
 - b. Any amounts of groundwater in the Aquifer allocated in this Determination that are permitted for withdrawal pursuant to section 37-90-105, by small capacity well permits issued after the issuance of this Determination reduce the amount of water, and the allowed average annual amount of withdrawal, that may be withdrawn by wells permitted pursuant to section 37-90-107(7).
 - c. In accordance with Rule 5.3.6 of the Designated Basin Rules, it has been determined that withdrawal of groundwater from the Aquifer underlying the Overlying Land will not, within one hundred years, deplete the flow of a natural stream or its alluvial aquifer at an annual rate greater than one-tenth of one percent of the annual rate of withdrawal and, therefore, the groundwater in the Aquifer underlying the Overlying Land is nontributary groundwater as defined in Rule 4.2.22 of the Designated Basin Rules. Pursuant to the Rules, no more than 98% of the amount of the groundwater in the Aquifer underlying the Overlying Land withdrawn annually shall be consumed.

12. Pursuant to section 37-90-105(1), the State Engineer has the authority to approve small capacity well permits. While water withdrawn from the Aquifer from beneath the Overlying Land by small capacity wells may consist of the groundwater allocated herein, the Commission recognizes that in approving small capacity permits the State Engineer is not bound by the terms and conditions of this Determination, and may approve small capacity permits based on standards and with such conditions as the State Engineer considers appropriate.
13. The ability of wells permitted to withdraw the authorized amount of water from this nonrenewable Aquifer may be less than the one hundred years upon which the amount of water in the Aquifer is allocated, due to anticipated water level declines.
14. On September 13, 2021, in accordance with Rule 9.1 of the Designated Basin Rules, written recommendations concerning this application were requested from the Upper Black Squirrel Creek Ground Water Management District. Written recommendations from the District were received on October 7, 2021.
15. In accordance with sections 37-90-107(7)(c)(II) and 37-90-112, C.R.S., the application was published in the Ranchland News newspaper on September 23, 2021 and September 30, 2021. No objections to the application were received within the time limit set by statute.

ORDER

In accordance with section 37-90-107(7) and the Designated Basin Rules, the Commission hereby determines a right to an allocation of designated groundwater in the Laramie-Fox Hills Aquifer underlying 40 acres of land, described as the NE 1/4 of the NE 1/4 of Section 11, Township 14 South, Range 63 West, 6th P.M., further described in Exhibit A, subject to the following conditions.

16. The amount (i.e. volume) of water in the Aquifer underlying the 40 acres of Overlying Land allocated herein is 1,170 acre-feet (Underlying Groundwater).
17. The amount (i.e. volume) of Underlying Groundwater allocated herein shall be considered final, except that the Commission shall retain jurisdiction for subsequent adjustment of such amount to conform to the actual local aquifer characteristics from adequate information obtained from well drilling or test holes, if such information indicates that the initial estimate of the amount of Underlying Groundwater in the Aquifer was incorrect.
18. Approval of this Determination meets the requirements of section 37-90-107(7)(d)(II), that requires a determination of groundwater to be withdrawn by a well be made prior to the granting of a well permit pursuant to section 37-90-107(7).
19. Well permits issued pursuant to section 37-90-107(7), (i.e. large capacity wells) and this Determination are subject to the following conditions.
 - a. The total amount of Underlying Groundwater that may be withdrawn from the Aquifer by all large capacity wells permitted pursuant to this Determination may not exceed a volume of 1,170 acre-feet, less any amount of the Underlying Groundwater allocated herein permitted to be withdrawn by small capacity wells issued permits pursuant to section 37-90-105 after the issuance of this Determination. The amounts of water

- permitted to be withdrawn by such small capacity wells shall be considered to be one-hundred times the annual withdrawals permitted to be withdrawn by those wells.
- b. The allowed average annual amount of withdrawal by any large capacity well (or well field) permitted to withdraw the allocated water shall be equal to the volume of water permitted to be withdrawn by that well (or well field) divided by one-hundred years.
 - c. The allowed maximum annual amount of withdrawal by any large capacity well (or well field) permitted to withdraw the allocated water may exceed the allowed average annual amount of withdrawal allowed by the well permit(s) as long as the total volume of water withdrawn by such well(s) does not exceed the product of the number of years since the date(s) of issuance of the well permit(s) times the allowed average annual amount of withdrawal allowed by the well permit(s).
 - d. The Applicant may pump the allowed average annual amount of withdrawal and the allowed maximum annual amount of withdrawal from one or more wells of a well field in any combination, so long as the total combined withdrawal of the wells does not exceed the amounts described in this Order.
 - e. No more than 98% of the amount of Underlying Groundwater withdrawn annually shall be consumed. The Commission may require well owners to demonstrate periodically that no more than 98% of the Underlying Groundwater withdrawn annually is being consumed.
 - f. The use of the Underlying Groundwater shall be limited to the following beneficial uses: domestic, irrigation (indoor and outdoor), agricultural, livestock, replacement, commercial, industrial, and fish and wildlife. The place of use of the Underlying Groundwater shall be limited to the above described 40 acres of Overlying Land. The Underlying Groundwater that is the subject of this Determination may be reused and successively used to extinction to the extent dominion and control over the water is maintained and its volume can be distinguished from the volume of any stream system into which it is introduced to the satisfaction of the Commission. The Underlying Groundwater is located within the Upper Black Squirrel Creek Ground Water Management District where local District rules apply which may further limit the withdrawal and use of the subject designated groundwater.
 - g. The wells must be located on the above described 40 acres of Overlying Land.
 - h. No well shall be located within 600 feet of any existing large-capacity well in the same Aquifer unless a Waiver of Claim of Injury is obtained from the owner of the existing well or unless the Commission, after a hearing, finds that circumstances in a particular instance warrant that a well may be permitted without regard to this limitation.
 - i. The wells must be constructed to withdraw water from only the Laramie-Fox Hills Aquifer.
 - j. The entire depth of each well must be geophysically logged prior to installing the casing in the same manner as set forth in Rule 9 of the Statewide Nontributary Ground Water Rules, 2 CCR 402-7.
 - k. A totalizing flow meter or other Commission approved measuring device shall be installed on each well and maintained in good working order by the well owner. Annual

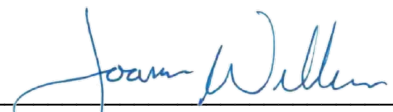
diversion records shall be collected and permanently maintained by the well owner and submitted to the Commission and the Upper Black Squirrel Creek Ground Water Management District upon request.

- l. The well shall be marked in a conspicuous place with this determination number, the well permit number, and the name of the Aquifer. The well owner shall take necessary means and precautions to preserve these markings.
20. A copy of this Determination shall be recorded by the Applicant in the public records of the county in which the Overlying Land is located so that a title examination of the above described 40 acres of Overlying Land area, or any part thereof, shall reveal the existence of this Determination.
21. The right to an allocation of designated groundwater determined herein is a vested property right with specific ownership. Some or all of the water right may be transferred independent of the land under which the right originated. Any action taken that is intended to convey, transfer, and/or sell the subject water right shall explicitly identify this Determination number, the specific Aquifer, and the total amount (i.e. volume) of the right that is being conveyed.

Dated this 3rd day of November, 2021.



Kevin G. Rein, P.E.
Executive Director
Colorado Ground Water Commission

By: 
Joanna Williams, P.E.
Water Resource Engineer

Prepared by: wad
F&O4251-BD.doc

NONTRIBUTARY GROUNDWATER LANDOWNERSHIP STATEMENT

This form is to be submitted with applications for the following, when the applicant is the owner of the overlying land.

1) A well permit to withdraw groundwater from the Dawson, Denver, Arapahoe or Laramie-Fox Hills aquifers, or other aquifer the applicant claims contains nontributary groundwater, outside of a Designated Groundwater Basin subject to section 37-90-137(4), C.R.S., except when the right to withdraw the groundwater has been determined by a valid decree; OR

2) A determination of water right in the Dawson, Denver, Arapahoe or Laramie-Fox Hills aquifers, or a well permit to withdraw groundwater from those aquifers that are subject to Designated Basin Rule 5.4, within a Designated Groundwater Basin.

NOTE: Form submittal instructions can be found on our website Colorado.gov/water. See instructions on the reverse of this form. Type or print in black or blue ink.

1. APPLICANT INFORMATION			
Name of Applicant Z Investments, LLC			
Mailing Address PO Box 50005	City Colorado Springs	State Colorado	Zip Code 80949
Telephone Number (include area code) 719-332-0599		Email greg@zinvestments.net	
2. AQUIFER Laramie-Fox Hills			
3. CLAIM OF OWNERSHIP – I hereby claim that I am the owner of the following described property, as evidenced by the attached copy of a deed recorded in the county in which the property is located. Number of acres: <u>40</u> in the county of: <u>El Paso</u> described as follows (insert legal description). <u>NE1/4 of the NE1/4 of Section 11, Township 14 South, Range 63 West of the 6th P.M.</u> - I further claim that the right to withdraw the groundwater in the aquifer underlying the above described property has not been reserved by another, nor has consent been given to another for the right to its withdrawal.			
4. THE APPLICANT MUST PROVIDE – a Verification of Notice of Application (form no. GWS-43) (see instructions for exceptions).			
5. SIGNATURE – Sign or enter name(s) of applicant(s) or authorized agent. The making of false statements herein constitutes perjury in the second degree, which is punishable as a class 1 misdemeanor pursuant to C.R.S. 24-4-104(13)(a). I have read the statements herein, know the contents thereof, and state that they are true to my knowledge. Signature: <u>Greg Zindorf</u> Date: <u>06-28-2021</u> Print name and title: Greg Zindorf, Managing Member			

**COLORADO GROUND WATER COMMISSION
FINDINGS AND ORDER**

IN THE MATTER OF AN APPLICATION FOR REPLACEMENT PLAN TO ALLOW THE WITHDRAWAL OF GROUNDWATER FROM THE ARAPAHOE AQUIFER IN THE UPPER BLACK SQUIRREL CREEK DESIGNATED GROUNDWATER BASIN.

REPLACEMENT PLAN NO. 4252-RP

FOR DETERMINATION OF WATER RIGHT NO. 4252-BD

AQUIFER: ARAPAHOE

APPLICANT: Z INVESTMENTS, LLC

In compliance with section 37-90-107.5, C.R.S. and the Designated Basin Rules, 2 CCR 410-1 (Rules or Rule), Z Investments, LLC (Applicant) submitted an application for a replacement plan to allow the withdrawal of groundwater from the Arapahoe Aquifer that has been allocated by Determination of Water Right No. 4252-BD.

FINDINGS

1. Pursuant to section 37-90-107(7), C.R.S., in a Findings and Order dated November 3, 2021, the Ground Water Commission (Commission) approved a Determination of a Right to an Allocation of Groundwater, No. 4252-BD, from the Arapahoe Aquifer (Aquifer), summarized as follows.
 - a. The determination quantified an amount of water from beneath 40 acres of overlying land described as the NE 1/4 of the NE 1/4 of Section 11, Township 14 South, Range 63 West, 6th P.M., in El Paso County (Overlying Land).
 - b. The amount of water in the aquifer that was allocated was 578 acre-feet, and the allowed average annual amount of groundwater to be withdrawn from the aquifer was limited to 5.78 acre-feet per year (subject to adjustment by the Commission to conform to actual local aquifer characteristics).
 - c. The use of groundwater is limited to the following beneficial uses: domestic, irrigation (indoor and outdoor), agricultural, livestock, replacement, commercial, industrial, and fish and wildlife.
 - d. Withdrawal of the subject groundwater will, within one hundred years, deplete the flow of a natural stream or its alluvial aquifer at an annual rate greater than one-tenth of one percent of the annual rate of withdrawal, the groundwater is considered to be not-nontributary, and Commission approval of a replacement plan providing for actual depletion of affected alluvial aquifers and adequate to prevent any material injury to existing water rights in such alluvial aquifers is required prior to approval of well permits for wells to withdraw the subject groundwater.
2. The subject water is Designated Groundwater located within the boundaries of the Upper Black Squirrel Creek Designated Groundwater Basin and the Upper Black Squirrel Creek Ground Water Management District. The Commission has jurisdiction over the withdrawal of the water by large capacity wells that are permitted pursuant to section 37-90-107(7).
3. Withdrawal of the subject groundwater would deplete the alluvial aquifer of the Upper Black

Squirrel Creek Designated Groundwater Basin, which, according to Rule 5.2.6.2, has been determined to be over appropriated. Such depletion would unreasonably impair existing large capacity alluvial rights withdrawing water from that alluvial aquifer.

4. Pursuant to Rule 5.6.1.A this plan must be adequate to prevent any material injury to water rights of other appropriators, which for purposes of this plan means large capacity wells withdrawing water from the alluvial aquifer of the Upper Black Squirrel Creek Designated Groundwater Basin.
5. Pursuant to Rule 5.3.6.2(C) the amount of replacement water shall provide for the depletion of alluvial water for the first 100 years due to all previous pumping and if pumping continues beyond 100 years, shall replace actual impact until pumping ceases.
6. The application for the replacement plan was received by the Commission on July 13, 2021.
7. The Applicant proposes to divert 1.34 acre-feet annually from the Arapahoe Aquifer for a period of 300 years. The Arapahoe aquifer water will be withdrawn through four (4) wells to be located on four (4) residential lots. Each Arapahoe Aquifer well is proposed to divert 0.335 acre-feet of water annually for in-house use in one (1) single-family residence (0.26 acre-foot per residence); and irrigation (indoor and outdoor), agricultural, livestock, commercial, industrial, fish and wildlife, and replacement (0.075 acre-foot per lot). The land on which the wells will be located is the Overlying Land described above.
8. At a continuous withdrawal of 1.34 acre-feet annually for 300 years, depletions to the alluvial aquifer system of the Upper Black Squirrel Creek Designated Groundwater Basin would steadily increase to 0.929 acre-feet per year in the 300th year, which is equal to 69.4% of pumping, as shown in Exhibit A.
9. The Applicant proposes to provide 0.936 acre-feet per year of replacement water to the alluvial aquifer system of the Upper Black Squirrel Creek Designated Groundwater Basin. The proposed source of replacement water is septic return flows from the in-house use of the groundwater to be pumped under the plan. The Applicant estimates that return flows from each lot will consist of 90% of the water used for in-house purposes. Assuming each lot uses a total annual amount for in-house use of 0.26 acre-feet, the return flow per lot would be 0.234 acre-feet annually, and the return flows under the plan will total 0.936 acre-feet per year for all four (4) lots at full build out.
10. The subject property is located within the drainage of Upper Black Squirrel Creek, and the return flows will flow to the alluvial aquifer of the Upper Black Squirrel Creek Designated Groundwater Basin. The Applicant proposes to aggregate all replacements to the drainage in which the well or wells will operate, in accordance with Guideline 2007-1.
11. Pursuant to Rule 5.6.1.B this plan must be adequate to prevent unreasonable impairment of water quality. Pursuant to Rule 5.6.1.B.1.b, if the replacement source water is from an onsite wastewater treatment system permitted by a local health agency and the applicant demonstrates the source is in compliance with that permit there shall be a rebuttable presumption of no unreasonable impairment of water quality.
12. Pursuant to Rule 5.6.1.C this plan, including the proposed uses of the water withdrawn pursuant to the plan, must not be speculative, and must be technically and financially feasible and within the Applicant's ability to complete. The plan, including the proposed uses of the water withdrawn pursuant to the plan, is not speculative. The plan appears technically and

financially feasible and within the Applicant's ability to complete.

13. Pursuant to Rule 5.6.1.D this plan must be able to be operated and administered on an ongoing and reliable basis. The plan appears to be able to be operated and administered on an ongoing and reliable basis.
14. Pursuant to Rule 5.6.1.F replacement source water must be physically and legally available in time, place and amount to prevent material injury. As determined in Determination of Water Right No. 4252-BD water is currently available in the amounts and for the number of years proposed to be diverted.
15. Pursuant to Rule 5.6.1.G the replacement source water must be legally available for use. Records in this office indicate that the Applicant controls the water right to be used as the source of replacement water, consisting of Determination of Water Right No. 4252-BD, and such water is legally available for use pursuant to this plan.
16. In accordance with Rule 5.6.4 the application was referred to the Upper Black Squirrel Creek Ground Water Management District on September 13, 2021. No response was received from the District. Written recommendations from the District were received on October 7, 2021.
17. In accordance with sections 37-90-107.5 and 37-90-112, C.R.S., the application was published in the Ranchland News newspaper on September 23, 2021 and September 30, 2021. No objections to the application were received within the time limit set by statute.
18. According to Rule 5.6.1:
 - a. The Applicant has the burden of proving the adequacy of the plan in all respects.
 - b. If the applicant meets its burden of proof, the Commission shall grant approval of the plan which shall include any terms and conditions established the Commission.
19. The Commission Staff has evaluated the application pursuant to section 37-90-107.5, and the requirements of Rule 5.3.6.2(C) and Rule 5.6, finds that the requirements have been meet, and the plan may be approved to allow diversions from the Arapahoe Aquifer if operated subject to the conditions given below.

ORDER

In accordance with section 37-90-107.5, and the Designated Basin Rules, the Colorado Ground Water Commission orders that the application for a replacement plan to allow the withdrawal of groundwater from the Arapahoe Aquifer underlying 40 acres that are the subject of Determination of Water Right no. 4252-BD is approved subject to the following conditions:

20. The Arapahoe Aquifer water will be withdrawn through four (4) wells to be located on four (4) residential lots. The allowed use of groundwater for each well under this plan is in-house use in one (1) single-family residence; and irrigation (indoor and outdoor), agricultural, livestock, commercial, industrial, fish and wildlife, and replacement.
21. The allowed annual amount of groundwater to be withdrawn from the Aquifer by all wells operating under this plan shall not exceed 1.34 acre-feet. The allowed annual amount of water to be withdrawn from each on-lot well shall not exceed 0.335 acre-feet.

22. A totalizing flow meter shall be installed on each well. The well owner shall maintain the meter in good working order.
23. Permanent records of all withdrawals of groundwater from each well shall be recorded at least annually by the well owners, permanently maintained, and provided to the Commission and the Upper Black Squirrel Creek Ground Water Management District upon request.
24. Pumping under this plan is limited to a period of 300 years. The year of first use of this replacement plan shall be the calendar year of construction of a well permitted pursuant to this plan or permitting of an existing well pursuant to the plan.
25. Return flows from in-house use of groundwater shall occur through individual on-lot non-evaporative septic systems located within the 40 acres of Overlying Land that are the subject of Determination of Water Right No. 4252-BD. The septic systems must be constructed and operated in compliance with a permit issued by a local health agency.
26. Replacement of depletions must be provided annually in the acre-feet amounts shown in Exhibit A. Annual replacement requirements may be computed by pro-rating between the values given on Exhibit A, or for simplicity may be taken as the amount shown in the next succeeding 5 year increment.
27. The Applicant or their successor(s) are responsible for ensuring that replacement water is provided to the alluvial aquifer as required by this plan. The annual replacement requirement and the annual amount of replacement water provided shall be calculated and reported on a form acceptable to the Commission. The annual amount of replacement water provided must be no less than the annual replacement requirement on a yearly basis. No credit shall be claimed by the Applicant for an oversupply of replacement water provided to the alluvium during previous years.
28. The Applicant must provide the required annual amount of replacement water for the first 100 years, or for as long as a well is operated pursuant to this plan, whichever is longer.
29. To assure adequate return flows, the number of wells serving an occupied single-family dwelling that is generating return flows via a non-evaporative septic system must be equal to or greater than the number of wells shown in Table 1 below, or an amended or alternate replacement plan must be obtained that will replace actual depletions to the alluvial aquifer so as to prevent any material injury to water rights of other appropriators.

Table 1		
Year	No. of Wells	Return Flow (af/yr)
0 - 20	1	0.234
21 - 50	2	0.468
51 - 110	3	0.702
111 - 300	4	0.936

30. The Applicant (and their successors) must gather and maintain permanent records of all information pertaining to operation of this plan, which shall include, but is not be limited to, those items identified below. The Applicant must submit records to the Commission and the Upper Black Squirrel Creek Ground Water Management District on forms acceptable to the Commission, on an annual basis for the previous calendar year, by February 15th of the

Aquifer: Arapahoe

Applicant: Z Investments, LLC

following year.

- a. Identification of all well permits issued and wells constructed under this plan.
 - b. The amount of water diverted by each well and all wells in total, both annually and cumulatively since operation of the plan began.
 - c. The number of occupied dwellings served by each well.
 - d. The return flows occurring from use of all wells operating under the plan, assuming 0.234 acre-feet per year per occupied single family dwelling (90% of the water used for in-house purposes) enters the alluvial aquifer as replacement water.
 - e. Any other information the Commission deems relevant and necessary to operation, monitoring, accounting, or administration of the plan.
31. The Applicant (and their successors) are fully responsible for the operation, monitoring, and accounting of the replacement plan. In the event a lot with a well permitted or operating pursuant to this plan is sold, identification of the well that was sold and evidence that the new owner has been notified of their responsibilities under the replacement plan shall accompany that year's accounting.
32. Any covenants adopted for this subdivision should contain a description of the replacement plan, including the limitations on diversions and use of water for each well and lot, the requirement to meter and record all well pumping, and information on how records are to be reported and the plan is to be administered.
33. In the event the permitted well or wells are not operated in accordance with the conditions of this replacement plan, they shall be subject to administration, including orders to cease diverting groundwater.
34. All terms and conditions of Determination of Water Right No. 4252-BD must be met.
35. Pursuant to Rule 5.6.1.E, a copy of this Findings and Order shall be recorded by the Applicant in the clerk and recorder's records of El Paso County, so that a title examination of the land on which the structures involved in this plan are located reveals the existence of this plan.

Dated this 3rd day of November, 2021.



Kevin G. Rein, P.E.
Executive Director
Colorado Ground Water Commission


By: 
Joanna Williams, P.E.
Water Resource Engineer

Exhibit A
Replacement Plan - Determination No.: 4252-BD
Page 1 of 1

Designated Basin Summary Table for Z Investments, LLC Pumping Rate of 1.34 acre-feet per year for 300 Years from the Arapahoe aquifer Section(s): Sec. 11, T14S, R63W, 6th P.M.							
Year	Pumping (Q) (AF/YR)	Annual Depletion (q) (AF/YR)	Depletion as a % of Pumping (q/Q)	Year	Pumping (Q) (AF/YR)	Annual Depletion (q) (AF/YR)	Depletion as a % of Pumping (q/Q)
5	1.3	0.053	3.9	155	1.3	0.790	59.0
10	1.3	0.106	7.9	160	1.3	0.798	59.5
15	1.3	0.159	11.8	165	1.3	0.805	60.1
20	1.3	0.209	15.6	170	1.3	0.812	60.6
25	1.3	0.257	19.2	175	1.3	0.819	61.1
30	1.3	0.303	22.6	180	1.3	0.825	61.6
35	1.3	0.345	25.7	185	1.3	0.831	62.0
40	1.3	0.384	28.7	190	1.3	0.837	62.4
45	1.3	0.420	31.4	195	1.3	0.843	62.9
50	1.3	0.454	33.9	200	1.3	0.848	63.3
55	1.3	0.485	36.2	205	1.3	0.853	63.7
60	1.3	0.513	38.3	210	1.3	0.858	64.1
65	1.3	0.539	40.2	215	1.3	0.864	64.4
70	1.3	0.563	42.0	220	1.3	0.869	64.8
75	1.3	0.585	43.7	225	1.3	0.873	65.1
80	1.3	0.606	45.2	230	1.3	0.877	65.5
85	1.3	0.625	46.6	235	1.3	0.882	65.8
90	1.3	0.642	47.9	240	1.3	0.886	66.1
95	1.3	0.659	49.1	245	1.3	0.890	66.4
100	1.3	0.674	50.3	250	1.3	0.895	66.8
105	1.3	0.688	51.3	255	1.3	0.898	67.0
110	1.3	0.701	52.3	260	1.3	0.902	67.3
115	1.3	0.713	53.2	265	1.3	0.906	67.6
120	1.3	0.725	54.1	270	1.3	0.909	67.8
125	1.3	0.736	54.9	275	1.3	0.913	68.1
130	1.3	0.746	55.7	280	1.3	0.916	68.4
135	1.3	0.756	56.4	285	1.3	0.920	68.6
140	1.3	0.765	57.1	290	1.3	0.923	68.9
145	1.3	0.774	57.7	295	1.3	0.927	69.1
150	1.3	0.782	58.4	300	1.3	0.929	69.4

Created by Wenli Dickinson on September 10, 2021

Values for 'Depletion as a % of Pumping' (q/Q) are not calculated when the pumping rate (Q) is changed to anything but zero

Replacement Plan Accounting Reporting Form

Determination of Water Right Number: 4252-BD

Aquifer from which wells produce water: Arapahoe

Submit to: Colorado Ground Water Commission, 1313 Sherman St., Room 821, Denver, CO 80203

Person responsible for gathering and submitting data (required)

Name: _____

Email address: _____

Mailing Address: _____

Telephone: _____

Calendar year being reported ¹: _____

Calendar year operation of the plan was initiated ²: _____

Year number of operation of the plan ³: _____

Annual replacement water requirement (acre-feet/year) ⁴: _____

Well Permit no. ⁵	Address of property served by this well ⁶	Meter Reading at beginning of year ⁷	Meter Reading at end of year ⁸	Metered pumping this year ⁹	Meter's Units ¹⁰	Date of Meter reading at end of year ¹¹	Metered pumping this year ¹² (acre-feet)	Pumping of this well since initiation of operation of the plan ¹³ (acre-feet)

Well Permit no. ⁵	Address of property served by this well ⁶	Number of Occupied Single Family Dwellings ¹⁴	Amount of Irrigated Land ¹⁵ (ft ²)	Number of Large Domestic Animals ¹⁶	Estimated Return Flow ¹⁷ (acre-feet)

Conversion rates:

1 acre-foot equals 325,851 gallons

1 acre-foot equals 43,560 cubic feet

See reverse side for notes.

Notes:

- 1) Calendar year for which this report is being submitted.
- 2) The calendar year when the first well permitted pursuant to this plan was constructed, or when the first permit for an existing well was issued pursuant to the plan. Once the plan has been initiated this year will not change.
- 3) The number of years after initiation of operation of the plan. The year of initiation is year number 1.
- 4) Equal to "Annual Depletion" on Exhibit A of the Replacement Plan.
- 5) The well permit number of the well being operated pursuant to the plan.
- 6) The address of the property served by the well.
- 7) The reading on the meter at the beginning of the year. Equal to reading on the meter at end of year on last year's reporting form. For the first year of operation of a well this is the meter reading prior to pumping under the plan.
- 8) Reading on the meter at the end of the year.
- 9) The amount of water pumped by the well this year. Equal to the reading on the meter at the end of this year minus reading on the meter at the beginning of the year. If a new meter was installed during the year, explain that fact and report the sum of the readings of the old and new meters over the year.
- 10) Units of measurement shown on the meter.
- 11) Date that the meter was read this year. This should be on December 31st or as close to that date as possible.
- 12) The amount pumped this year, reported in acre-feet.
- 13) The cumulative amount of water pumped by this well (and all previous wells serving this address) since initiation of operation of the plan. Equal to "Pumping of this well since initiation of operation of the plan" on last year's reporting form plus "Pumping of this well this year" on this year's reporting form.
- 14) The number of occupied single family dwellings supplied by the well.
- 15) The amount of irrigated land supplied by the well.
- 16) The number of large domestic animals supplied by the well.
- 17) Return flow consists of water recharged into the alluvial aquifer by way of non-evaporative septic and leaching field system discharges, which are estimated as 0.25 acre-feet per year (90 percent of the amount of water supplied to in-house uses by each well supplying an occupied dwelling). Refer to the Findings and Orders of the approved replacement plan.

Appendix D

***El Paso County Land Development Code
Water Quality Requirements and Results
Arapahoe Confined Aquifer - Winkler Well
For Zindorff II Subdivision @ 22755 McDaniels Road
Sampled July 16th, 2021***

Compound	Units	MCL/SMCL	Result
Antimony	mg/l	0.006	0.001
Arsenic	mg/l	0.01	0
Barium	mg/l	2	0.082
Beryllium	mg/l	0.004	0
Cadmium	mg/l	0.005	0
Chromium	mg/l	0.1	0.002
Cyanide (Total)	mg/l	0	0
Fluoride	mg/l	4	0.31
Mercury	mg/l	0.002	0.0001
Nitrate as N	mg/l	10	7.28
Nitrite as N	mg/l	1	0.03
Selenium	mg/l	0.05	0.004
Thallium	mg/l	0.002	0.001
Aluminum	mg/l	0.05	0.002
Chloride	mg/l	250	8.9
Langelier Index			-0.63
Iron	mg/l	0.3	0
Manganese	mg/l	0.05	0.0008
pH		6.5 - 8.5	7.28
Silver	mg/l	0.1	0.0005
Sulfate	mg/l	250	37.7
TDS	mg/l	500	254
Zinc	mg/l	5	0.008
Gross Alpha/Beta	pCi/l	15	11.7
Combined Radium 226+228	pCi/l	5	1.11
E-Coli	#/100 ml	Absent	Absent
Total Coliform	#/100 ml	Absent	Absent

Green = Result below MCL - Acceptable Water Quality

Analytical Results

TASK NO: 210714015

Report To: Shelby Gatlin

Company: JDS Hydro Consultants
5540 Tech Center Dr.
Suite 100
Colorado Springs CO 80919

Bill To: Shelby Gatlin

Company: JDS Hydro Consultants
5540 Tech Center Dr.
Suite 100
Colorado Springs CO 80919

Task No.: 210714015

Client PO:

Client Project: Winkler Well

Date Received: 7/14/21

Date Reported: 7/22/21

Matrix: Water - Drinking

Lab Number	Customer Sample ID	Sample Date/Time	Test	Result	Method	Date Analyzed
210714015-01A	Winkler Well #1-4	7/13/21 10:27 AM	Total Coliform	Absent	SM 9223	7/15/21
			E-Coli	Absent	SM 9223	7/15/21

Abbreviations/ References:

Absent = Coliform Not Detected

Present = Coliform Detected - Chlorination Recommended

Date Analyzed = Date Test Completed

SM = "Standard Methods for the Examination of Water and Wastewater"; APHA; 19th Edition; 1995



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10411 Heinz Way / Commerce City, CO 80640 / 303-659-2313

Mailing Address: P.O. Box 507 / Brighton, CO 80601-0507

Drinking Water Chain of Custody



Report To Information		Bill To Information (If different from report to)		Project Information	
Company Name: <u>JDS-Hydro Consulting</u>		Company Name: _____		PWSID: _____	
Contact Name: <u>Shelby Gatlin</u>		Contact Name: _____		System Name: _____	
Address: <u>5540 Tech Center Dr. Ste 100</u>		Address: _____		Compliance Samples: Yes <input type="checkbox"/> No <input type="checkbox"/>	
City: <u>Colorado Springs</u> State: <u>CO</u> Zip: <u>80919</u>		City: _____ State: _____ Zip: _____		Send Results to CDPHE: Yes <input type="checkbox"/> No <input type="checkbox"/>	
Phone: <u>719-227-0072</u>		Phone: _____		Task Number (Lab Use Only) _____	
Email: <u>Sgatlin@jds hydro.com</u>		Email: _____		CAL Task 210714015	
Sample Collector: <u>Shelby Gatlin</u>		Sample Collector: _____		JML	
Sample Collector Phone: <u>719-551-8233</u>		PO Number: _____			

Commerce City Lab
10411 Heinz Way
Commerce City CO 80640

Lakewood Service Center
12860 W. Cedar Dr, Suite 100A
Lakewood CO 80228

Phone: 303-659-2313

www.coloradolab.com

Report To Information				PHASE I, II, V Drinking Water Analyses (check requested analysis)														Subcontract Analyses														
Date	Time	Client Sample ID / Sample Pt ID	No. of Containers	Residual Chlorine (mg/L)	P/A Samples Only	Total Coliform P/A	504.1 EDB/DBCP	505 Pests/PCBs	515.4 Herbicides	524.2 VOCs	525.2 SOCs-Pest	531.1 Carbamates	547 Glyphosate	548.1 Endothal	549.2 Diquat	524.2 TTHMs	552.2 HAA5s	Lead/Copper	Nitrate	Nitrite	Fluoride	Inorganics	Alk./Lang. Index (Circle)	TOC, DOC (Circle)	SUA, UV 254 (Circle)	Total Cyanide	Gross Alpha/Beta	Radium 226/228	Radon	Uranium	Chlorite	
Winkler well																																
07/13/21	10:20AM	1	1																													
	10:21AM	2	1																													
	10:22AM	3	2																													
	10:27AM	4	1																													
<div style="border: 1px solid black; border-radius: 50%; width: 50px; height: 50px; display: flex; align-items: center; justify-content: center; margin: 0 auto;">5</div>																																
Instructions: Please sample compounds listed on enclosed word doc.																																
Field Temp: 65.7C Field pH: 7.42																																
C/S Info: _____ Delivered Via: <u>UPS</u> Relinquished By: _____ Date/Time: 7/13/21 12:00 PM																																
Received By: _____ Date/Time: 07/13/21 12:00 PM																																
Relinquished By: _____ Date/Time: 7/14/21																																

**EPC Confined Aquifer Sampling Requirements
– No Radiologicals**

Field Measurements

pH

Temp

Inorganics

Antimony

Arsenic

Barium

Beryllium

Cadmium

Chromium

Cyanide (Total)

Fluoride

Mercury

Nitrate

Nitrite

Selenium

Thallium

Secondary MCLs

Aluminum

Chloride

Corrosivity

Iron

Manganese

Silver

Sulfate

Zinc

TDS

Bacteriological:

Total Coliform

Analytical Results

TASK NO: 210714015

Report To: Shelby Gatlin

Company: JDS Hydro Consultants
5540 Tech Center Dr.
Suite 100
Colorado Springs CO 80919

Bill To: Shelby Gatlin

Company: JDS Hydro Consultants
5540 Tech Center Dr.
Suite 100
Colorado Springs CO 80919

Task No.: 210714015
Client PO:
Client Project: Winkler Well

Date Received: 7/14/21
Date Reported: 7/22/21
Matrix: Water - Drinking

Customer Sample ID Winkler Well #1-4
Sample Date/Time: 7/13/21 10:27 AM
Lab Number: 210714015-01

Test	Result	Method	ML	Date Analyzed	Analyzed By
Bicarbonate	105.8 mg/L as CaCO ₃	SM 2320-B	4	7/15/21	ECM
Calcium as CaCO ₃	80.9 mg/L	EPA 200.7	0.1	7/20/21	MBN
Carbonate	< 4 mg/L as CaCO ₃	SM 2320-B	4	7/15/21	ECM
Hydroxide	< 4 mg/L as CaCO ₃	SM 2320-B	4	7/15/21	ECM
Langelier Index	-0.63 units	SM 2330-B		7/22/21	SAN
pH	7.28 units	SM 4500-H-B	0.01	7/14/21	MBN
Temperature	20 °C	SM 4500-H-B	1	7/14/21	MBN
Total Alkalinity	105.8 mg/L as CaCO ₃	SM 2320-B	4	7/15/21	ECM
Total Dissolved Solids	254 mg/L	SM 2540-C	5	7/19/21	ISG

Abbreviations/ References:

ML = Minimum Level = LRL = RL
mg/L = Milligrams Per Liter or PPM
ug/L = Micrograms Per Liter or PPB
mpn/100 mls = Most Probable Number Index/ 100 mls
Date Analyzed = Date Test Completed



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Analytical Results

TASK NO: 210714015

Report To: Shelby Gatlin

Company: JDS Hydro Consultants
5540 Tech Center Dr.
Suite 100
Colorado Springs CO 80919

Bill To: Shelby Gatlin

Company: JDS Hydro Consultants
5540 Tech Center Dr.
Suite 100
Colorado Springs CO 80919

Task No.: 210714015
Client PO:
Client Project: Winkler Well

Date Received: 7/14/21
Date Reported: 7/22/21
Matrix: Water - Drinking

Customer Sample ID Winkler Well #1-4
Sample Date/Time: 7/13/21 10:27 AM
Lab Number: 210714015-01

Test	Result	Method	ML	Date Analyzed	Analyzed By	MCL
Chloride	8.9 mg/L	EPA 300.0	0.1 mg/L	7/14/21	MAT	
Fluoride	0.31 mg/L	EPA 300.0	0.10 mg/L	7/14/21	MAT	4
Nitrate Nitrogen	7.28 mg/L	EPA 300.0	0.05 mg/L	7/14/21	MAT	10
Nitrite Nitrogen	< 0.03 mg/L	EPA 300.0	0.03 mg/L	7/14/21	MAT	1
Sulfate	37.7 mg/L	EPA 300.0	0.1 mg/L	7/14/21	MAT	
Cyanide-Total	< 0.005 mg/L	EPA 335.4	0.005 mg/L	7/15/21	CES	0.02
Total						
Iron	< 0.005 mg/L	EPA 200.7	0.005 mg/L	7/20/21	MBN	0.3
Sodium	37.8 mg/L	EPA 200.7	0.1 mg/L	7/20/21	MBN	N/A
Aluminum	0.002 mg/L	EPA 200.8	0.001 mg/L	7/16/21	JTF	0.05
Antimony	< 0.001 mg/L	EPA 200.8	0.001 mg/L	7/15/21	MLT	0.006
Arsenic	< 0.001 mg/L	EPA 200.8	0.001 mg/L	7/15/21	MLT	0.01
Barium	0.082 mg/L	EPA 200.8	0.001 mg/L	7/15/21	MLT	2
Beryllium	< 0.001 mg/L	EPA 200.8	0.001 mg/L	7/15/21	MLT	0.004
Cadmium	< 0.001 mg/L	EPA 200.8	0.001 mg/L	7/15/21	MLT	0.005
Chromium	0.002 mg/L	EPA 200.8	0.001 mg/L	7/15/21	MLT	0.1
Manganese	< 0.0008 mg/L	EPA 200.8	0.0008 mg/L	7/16/21	JTF	0.05
Mercury	< 0.0001 mg/L	EPA 200.8	0.0001 mg/L	7/15/21	MLT	0.002
Nickel	0.002 mg/L	EPA 200.8	0.001 mg/L	7/15/21	MLT	N/A

Abbreviations/ References:

ML = Minimum Level = LRL = RL
MCL = Maximum Contaminant Level per The EPA
mg/L = Milligrams Per Liter or PPM
ug/L = Micrograms Per Liter or PPB
mpn/100 mls = Most Probable Number Index/ 100 mls
Date Analyzed = Date Test Completed



DATA APPROVED FOR RELEASE BY

Analytical Results

TASK NO: 210714015

Report To: Shelby Gatlin

Company: JDS Hydro Consultants
5540 Tech Center Dr.
Suite 100
Colorado Springs CO 80919

Bill To: Shelby Gatlin

Company: JDS Hydro Consultants
5540 Tech Center Dr.
Suite 100
Colorado Springs CO 80919

Task No.: 210714015
Client PO:
Client Project: Winkler Well

Date Received: 7/14/21
Date Reported: 7/22/21
Matrix: Water - Drinking

Customer Sample ID Winkler Well #1-4
Sample Date/Time: 7/13/21 10:27 AM
Lab Number: 210714015-01

Test	Result	Method	ML	Date Analyzed	Analyzed By	MCL
<i>Total</i>						
Selenium	0.004 mg/L	EPA 200.8	0.001 mg/L	7/15/21	MLT	0.05
Silver	< 0.0005 mg/L	EPA 200.8	0.0005 mg/L	7/16/21	JTF	
Thallium	< 0.001 mg/L	EPA 200.8	0.001 mg/L	7/15/21	MLT	0.002
Zinc	0.008 mg/L	EPA 200.8	0.001 mg/L	7/16/21	JTF	5

Abbreviations/ References:

ML = Minimum Level = LRL = RL
MCL = Maximum Contaminant Level per The EPA
mg/L = Milligrams Per Liter or PPM
ug/L = Micrograms Per Liter or PPB
mpn/100 mls = Most Probable Number Index/ 100 mls
Date Analyzed = Date Test Completed



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10411 Heinz Way / Commerce City, CO 80640 / 303-659-2313
Mailing Address: P.O. Box 507 / Brighton, CO 80601-0507

August 26, 2021

Report to:

Shelby Gatlin

JDS Hydro Consultants, Inc.

5540 Tech Center Drive

Colorado Springs, CO 80919

cc: Doug Schwenke

Bill to:

Shelby Gatlin

JDS Hydro Consultants, Inc.

5540 Tech Center Drive

Suite 100

Colorado Springs, CO 80919

Project ID:

ACZ Project ID: L67191

Shelby Gatlin:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on July 16, 2021. This project has been assigned to ACZ's project number, L67191. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan. The enclosed results relate only to the samples received under L67191. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

Except as noted, the test results for the methods and parameters listed on ACZ's current NELAC certificate letter (#ACZ) meet all requirements of NELAC.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after September 25, 2021. If the samples are determined to be hazardous, additional charges apply for disposal (typically \$11/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical raw data reports for ten years.

If you have any questions or other needs, please contact your Project Manager.



Sue Webber has reviewed and
approved this report.



JDS Hydro Consultants, Inc.

Project ID:

Sample ID: WINKLER WELL 1

Locator:

ACZ Sample ID: **L67191-01**

Date Sampled: 07/13/21 10:15

Date Received: 07/16/21

Sample Matrix: *Groundwater*

Gross Alpha & Beta, total

Prep Method:

M900.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Gross Alpha	07/27/21 0:25		4.6	2.5	6.5	pCi/L	*	ess
Gross Beta	07/27/21 0:25		6.1	2.8	5.2	pCi/L		ess

JDS Hydro Consultants, Inc.

Project ID:

Sample ID: WINKLER WELL 2

Locator:

ACZ Sample ID: **L67191-02**

Date Sampled: 07/13/21 10:11

Date Received: 07/16/21

Sample Matrix: Groundwater

Radium 226, total

Prep Method:

M903.1

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226, total	08/11/21 0:28		0.27	0.11	0.13	pCi/L	*	djc

Radium 228, total

Prep Method:

M904.0

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228, total	08/24/21 17:11		-0.76	1	2.4	pCi/L	*	cer

Report Header Explanations

<i>Batch</i>	A distinct set of samples analyzed at a specific time
<i>Error(+/-)</i>	Calculated sample specific uncertainty
<i>Found</i>	Value of the QC Type of interest
<i>Limit</i>	Upper limit for RPD, in %.
<i>LCL</i>	Lower Control Limit, in % (except for LCSS, mg/Kg)
<i>LLD</i>	Calculated sample specific Lower Limit of Detection
<i>PCN/SCN</i>	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
<i>PQL</i>	Practical Quantitation Limit
<i>QC</i>	True Value of the Control Sample or the amount added to the Spike
<i>Rec</i>	Amount of the true value or spike added recovered, in % (except for LCSS, mg/Kg)
<i>RER</i>	Relative Error Ratio, calculation used for Dup. QC taking into account the error factor.
<i>RPD</i>	Relative Percent Difference, calculation used for Duplicate QC Types
<i>UCL</i>	Upper Control Limit, in % (except for LCSS, mg/Kg)
<i>Sample</i>	Value of the Sample of interest

QC Sample Types

<i>DUP</i>	Sample Duplicate	<i>MS/MSD</i>	Matrix Spike/Matrix Spike Duplicate
<i>LCSS</i>	Laboratory Control Sample - Soil	<i>PBS</i>	Prep Blank - Soil
<i>LCSW</i>	Laboratory Control Sample - Water	<i>PBW</i>	Prep Blank - Water

QC Sample Type Explanations

Blanks	Verifies that there is no or minimal contamination in the prep method procedure.
Control Samples	Verifies the accuracy of the method, including the prep procedure.
Duplicates	Verifies the precision of the instrument and/or method.
Matrix Spikes	Determines sample matrix interferences, if any.

ACZ Qualifiers (Qual)

H	Analysis exceeded method hold time.
---	-------------------------------------

Method Prefix Reference

M	EPA methodology, including those under SDWA, CWA, and RCRA
SM	Standard Methods for the Examination of Water and Wastewater.
D	ASTM
RP	DOE
ESM	DOE/ESM

Comments

- (1) Solid matrices are reported on a dry weight basis.
- (2) Preparation method: "Method" indicates preparation defined in analytical method.
- (3) QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
- (4) An asterisk in the "XQ" column indicates there is an extended qualifier and/or certification qualifier associated with the result.

For a complete list of ACZ's Extended Qualifiers, please click:

<https://aczk.com/wp-content/uploads/2019/04/Ext-Qual-List.pdf>

JDS Hydro Consultants, Inc.

ACZ Project ID: L67191

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Alpha

M900.0

Units: pCi/L

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Error	LLD	Found	Error	LLD	Rec%	Lower	Upper	RPD/RER	Limit	Qual
WG523813																
WG523813PBW	PBW	07/27/21						.88	0.74	0.68			1.36			
WG523813LCSWA	LCSW	07/27/21	PCN62436	100				100	8.4	1.3	100	67	144			
L67162-01MSA	MS	07/27/21	PCN62436	66.67	-0.42	0.86	1.6	47	6.5	1.5	71	67	144			
L67162-01DUP	DUP-RPD	07/27/21			-0.42	0.86	1.6	.88	1.3	1.5				565	20	RG
L67162-01DUP	DUP-RER	07/27/21			-0.42	0.86	1.6	.88	1.3	1.5				0.83	2	
L67238-02DUP	DUP-RER	07/27/21			0.81	1	12	2	1.1	8.6				0.8	2	
L67238-02DUP	DUP-RPD	07/27/21			0.81	1	12	2	1.1	8.6				85	20	RG

Beta

M900.0

Units: pCi/L

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Error	LLD	Found	Error	LLD	Rec%	Lower	Upper	RPD/RER	Limit	Qual
WG523813																
WG523813PBW	PBW	07/27/21						.66	1.8	1.8			3.6			
WG523813LCSWB	LCSW	07/27/21	RC210621-11	49.9				47	4.7	2.6	94	82	122			
L67162-01DUP	DUP-RPD	07/27/21			2.2	2	2	1.6	1.8	1.8				32	20	RG
L67162-01DUP	DUP-RER	07/27/21			2.2	2	2	1.6	1.8	1.8				0.22	2	
L67191-01MSB	MS	07/27/21	RC210621-11	49.9	6.1	2.8	5.2	55	5.1	9	98	82	122			
L67238-02DUP	DUP-RPD	07/27/21			4.4	1.3	7.2	3.8	1.3	5.5				15	20	

JDS Hydro Consultants, Inc.

ACZ Project ID: L67191

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Radium 226, total

M903.1

Units: pCi/L

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Error	LLD	Found	Error	LLD	Rec%	Lower	Upper	RPD/RER	Limit	Qual
WG524429																
WG524429PBW	PBW	08/11/21						.01	0.06	0.05			0.1			
WG524429LCSW	LCSW	08/11/21	PCN62879	20				15	0.45	0.09	75	43	148			
L66926-01DUP1	DUP-RPD	08/11/21			0.28	0.09	0.11	.34	0.13	0.1				19	20	
L66926-01DUP1	DUP-RER	08/11/21			0.28	0.09	0.11	.34	0.13	0.1				0.38	2	
L66988-02MS	MS	08/11/21	PCN62879	20	5.3	0.24	0.07	38	0.86	0.14	164	43	148			M1
L67075-04DUP2	DUP-RPD	08/11/21			0.26	0.07	0.13	.36	0.17	0.44				32	20	RG
L67075-04DUP2	DUP-RER	08/11/21			0.26	0.07	0.13	.36	0.17	0.44				0.54	2	

Radium 228, total

M904.0

Units: pCi/L

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Error	LLD	Found	Error	LLD	Rec%	Lower	Upper	RPD/RER	Limit	Qual
WG525485																
WG525485PBW	PBW	08/24/21						~12	0.51	0.54			1.08			
WG525485LCSW	LCSW	08/24/21	PCN63356	9.52				10	1.2	0.89	105	47	123			
L67130-01DUP	DUP-RER	08/24/21			1.3	1.9	4.7	2.1	2	4.4				0.29	2	
L67130-01DUP	DUP-RPD	08/24/21			1.3	1.9	4.7	2.1	2	4.4				47	20	RG
L67332-01DUP	DUP-RPD	08/24/21			0.95	1.1	2.7	2.3	2.9	6.6				83	20	RG
L67259-01MS	MS	08/24/21	PCN63356	19.05	0.64	1.2	2.8	23	3	5.1	117	47	123			
L67332-01DUP	DUP-RER	08/24/21			0.95	1.1	2.7	2.3	2.9	6.6				0.44	2	

JDS Hydro Consultants, Inc.

ACZ Project ID: **L67191**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L67191-01	WG523813	Gross Alpha	M900.0	RG	Sample concentration is less than 5x LLD; RPD was not used for data validation. Replicate Error Ratio (RER) is less than 2. Precision judged to be in control.
L67191-02	WG524429	Radium 226, total	M903.1	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M903.1	RG	Sample concentration is less than 5x LLD; RPD was not used for data validation. Replicate Error Ratio (RER) is less than 2. Precision judged to be in control.
	WG525485	Radium 228, total	M904.0	RG	Sample concentration is less than 5x LLD; RPD was not used for data validation. Replicate Error Ratio (RER) is less than 2. Precision judged to be in control.

JDS Hydro Consultants, Inc.

ACZ Project ID: **L67191**

No certification qualifiers associated with this analysis

JDS Hydro Consultants, Inc.

ACZ Project ID: L67191

Date Received: 07/16/2021 12:29

Received By:

Date Printed: 7/19/2021

Receipt Verification

	YES	NO	NA
1) Is a foreign soil permit included for applicable samples?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2) Is the Chain of Custody form or other directive shipping papers present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3) Does this project require special handling procedures such as CLP protocol?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4) Are any samples NRC licensable material?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5) If samples are received past hold time, proceed with requested short hold time analyses?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6) Is the Chain of Custody form complete and accurate?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7) Were any changes made to the Chain of Custody form prior to ACZ receiving the samples?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Samples/Containers

	YES	NO	NA
8) Are all containers intact and with no leaks?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9) Are all labels on containers and are they intact and legible?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10) Do the sample labels and Chain of Custody form match for Sample ID, Date, and Time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11) For preserved bottle types, was the pH checked and within limits? ¹	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12) Is there sufficient sample volume to perform all requested work?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13) Is the custody seal intact on all containers?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
14) Are samples that require zero headspace acceptable?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
15) Are all sample containers appropriate for analytical requirements?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16) Is there an Hg-1631 trip blank present?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
17) Is there a VOA trip blank present?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
18) Were all samples received within hold time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NA indicates Not Applicable

Chain of Custody Related Remarks

Client Contact Remarks

Shipping Containers

Cooler Id	Temp (°C)	Temp Criteria (°C)	Rad (µR/Hr)	Custody Seal Intact?
6257	21.3	NA	15	Yes

Was ice present in the shipment container(s)?

Yes - Wet ice was present in the shipment container(s) but was thawed by receipt at ACZ.

Client must contact an ACZ Project Manager if analysis should not proceed for samples received outside of their thermal preservation acceptance criteria.

JDS Hydro Consultants, Inc.

ACZ Project ID: L67191

Date Received: 07/16/2021 12:29

Received By:

Date Printed: 7/19/2021

¹ The preservation of the following bottle types is not checked at sample receipt: Orange (oil and grease), Purple (total cyanide), Pink (dissolved cyanide), Brown (arsenic speciation), Sterile (fecal coliform), EDTA (sulfite), HCl preserved vial (organics), Na₂S₂O₃ preserved vial (organics), and HG-1631 (total/dissolved mercury by method 1631).

