

**COLORADO GROUND WATER COMMISSION
FINDINGS AND ORDER**

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

REPLACEMENT PLAN - DETERMINATION OF WATER RIGHT NO. 3344-BD

AQUIFER: ARAPAHOE

APPLICANT: ANGEL E. CORDERO JR.

In compliance with Section 37-90-107.5, CRS, and the Designated Basin Rules, 2 CCR 410-1 ("Rules" or "Rule"), Angel E. Cordero Jr. ("Applicant") submitted an application for a replacement plan to allow the withdrawal of ground water from the Arapahoe Aquifer in accordance with Determination of Water Right No. 3344-BD.

FINDINGS

1. Pursuant to Section 37-90-107(7), CRS, in a Findings and Order dated October 12, 2016, the Ground Water Commission ("Commission") approved a Determination of Water Right, no. 3344-BD, for the Arapahoe Aquifer ("Aquifer"), summarized as follows.
 - a. The determination quantified an amount of water from beneath 35.55 acres of overlying land generally described as a part of the SE1/4 of the NE1/4 of Section 1, Township 14 South, Range 63 West of the 6th Principal Meridian, in El Paso County.
 - b. The total volume of underlying ground water that may be withdrawn from the Aquifer shall not exceed 635 acre-feet and the allowed average annual amount of ground water that may be withdrawn from the Aquifer shall not exceed 6.35 acre-feet.
 - c. The use of the allowed amount of underlying ground water shall be limited to the following beneficial uses: domestic, landscape irrigation, domestic animals, replacement.
 - d. In accordance with Rule 5.3.6 the withdrawal of the subject ground water 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 ground water 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 ground water.
2. The subject water is Designated Ground water located within the boundaries of the Upper Black Squirrel Creek Designated Ground Water Basin and within the Upper Black Squirrel Creek Ground Water Management District. The Commission has jurisdiction.
3. Withdrawal of the subject ground water would deplete the alluvial aquifer of the Upper Black Squirrel Creek Designated Ground Water Basin, which, according to Rule 5.2.6.2, has been determined to be over appropriated. Such depletion would unreasonably impair existing alluvial rights withdrawing water from that alluvial aquifer.
4. Pursuant to Rule 5.6.1 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

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Aquifer: Arapahoe

Applicant: Angel E. Cordero Jr.

Ground Water 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 subject application for the replacement plan was received by the Commission on January 12, 2018. On October 12, 2016 the Applicant had obtained approval of a previous replacement plan for withdrawal of water under Determination of Water Right no. 3344-BD. On March 27, 2018 the Applicant sent an email requesting cancellation of the replacement plan approved on October 12, 2016 pending approval of the replacement plan applied for on January 12, 2018.
7. The Applicant proposes to divert 1 acre-foot annually from the Arapahoe Aquifer for a period of 300 years. The Arapahoe Aquifer water will be withdrawn through two (2) wells to be located on two (2) residential lots. Each Arapahoe aquifer well is proposed to divert 0.5 acre-feet of water annually for use in 1 single family residence (0.3 acre-foot per residence), irrigation of 3,000 square feet of lawn and garden (0.15 acre-feet), and watering of four (4) large domestic animals (0.05 acre-feet).
8. At a continuous withdrawal of 1 acre-foot annually for 300 years, total depletions to the alluvial aquifer of the Upper Black Squirrel Creek Designated Ground Water Basin would steadily increase to 0.57 acre-feet per year in the 300th year, which is equal to 57% of pumping, as shown in Exhibit A.
9. The Applicant proposes to provide 0.585 acre-feet per year of replacement water to the alluvial aquifer of the Upper Black Squirrel Creek Designated Ground Water Basin. The proposed source of replacement water is septic and leaching field return flows from the in-house use and deep percolation from irrigation use of the ground water 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 and 15% of the water used for irrigation of lawn and garden. The Commission accepts the Applicant's estimated return flow rate of 15% of the water used for irrigation of lawn and garden so long as the irrigation water is applied using an above ground spray methodology (i.e. sprinkler spray heads), and not methods (such as drip irrigation) that result in an assumed return flow rate lower than 15%. Assuming each lot uses a total annual amount for in-house use of 0.30 acre-feet and 0.15 acre-feet for irrigation for irrigation of no more than 3,000 square-feet of home lawn and garden, the return flow per lot would be 0.293 acre-feet annually, and the return flows under the plan will total 0.585 acre-feet per year for the 2 lots at full build out.
10. The subject property is located within the drainage of Black Squirrel Creek, and the return flows will flow to the alluvial aquifer of the Upper Black Squirrel Creek Designated Ground Water 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. So long as the septic and leaching treatment systems for the in-house use of the water are constructed and operated in compliance with state and county health department standards the plan would not cause unreasonable impairment of water quality of the alluvial aquifer.
12. 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. 3344-BD.

13. In accordance with Rule 5.6.2 the application was referred to the Upper Black Squirrel Creek Ground Water Management District on March 19, 2018. No response was received from the District.
14. In accordance with Sections 37-90-107.5 and 37-90-112, CRS, the application was published in the Ranchland News newspaper on March 29, 2018 and April 5, 2018. No objections to the application were received within the time limit set by statute.
15. The Commission Staff has evaluated the application pursuant to Section 37-90-107.5, CRS, and the requirements of Rule 5.3.6.2(C) and Rule 5.6.
16. According to Rule 5.6.2 of the Designated Basin Rules:
 - a. The Applicant has the burden of proving the adequacy of the plan in all respects.
 - b. The Commission Staff shall propose any additional terms and conditions or limitations which are necessary to prevent material injury and to ensure that the plan is administrable and enforceable.
17. Based on the above, no material injury will occur to the water rights of large capacity wells producing from the alluvial aquifer of the Upper Black Squirrel Creek Designated Ground Water Basin, due to diversions from the Arapahoe Aquifer, if operated under this replacement plan, subject to the conditions given below.

ORDER

In accordance with Section 37-90-107.5, CRS, and the Designated Basin Rules, the Colorado Ground Water Commission orders that the application for a replacement plan to allow the withdrawal of ground water from the Arapahoe Aquifer underlying 35.55 acres that are the subject of Determination of Water Right no. 3344-BD is approved subject to the following conditions:

18. The Arapahoe Aquifer water will be withdrawn through two (2) wells to be located on two (2) residential lots. The allowed use of ground water for each well under this plan is use in 1 single family residence; irrigation of 3,000 square feet of lawn and garden; and watering of four (4) large domestic animals.
19. The allowed annual amount of ground water to be withdrawn from the aquifer by all wells operating under this plan shall not exceed 1 acre-foot. The allowed annual amount of water to be withdrawn from each on-lot well shall not exceed 0.5 acre-feet.
20. A totalizing flow meter shall be installed on each well. The well owner shall maintain the meter in good working order.
21. Permanent records of all withdrawals of ground water from each well shall be recorded at least annually by the well owners, permanently maintained, and provided to the Commission.
22. 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.

23. Return flows from in-house use of ground water shall occur through individual on-lot non-evaporative septic systems located within the 35.55 acres of overlying land that are the subject of Determination of Water Right No. 3344-BD.
24. The septic systems must be constructed and operated to state and county health department standards.
25. Irrigation of lawn and garden must be accomplished using an above ground spray methodology (i.e. sprinkler spray heads), and not methods (such as drip irrigation) that result in an assumed return flow rate lower than 15%.
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, and that the replacement prevents any material injury to the water rights of other appropriators. 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. Each lot with an occupied single family dwelling that utilizes a non-evaporative septic and leaching field treatment system and the watering of 3,000 square-feet of lawn and garden that is being supplied by a well shall be assumed to be providing 0.293 acre-feet of replacement water to the alluvial aquifer. To assure adequate return flows, the number of wells serving occupied single-family dwelling that are generating return flows via a non-evaporative septic and leaching field system and irrigation of lawn and garden must be equal to or greater than the number of well shown in Table 1 below, or an amended or alternate replacement plan must be applied for that will make the required replacement deliveries.

Year	No. of Wells	Return Flow (af/yr)
1-75	1	0.293
76-300	2	0.585

30. The Applicant or their successor(s) must gather, record 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 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 number of square feet irrigated by each well.
 - e. The number of large domestic animals served by each well.
 - f. The return flows occurring from use of all wells operating under the plan, assuming 0.27 acre-feet per year (90% of the water used for in-house purposes) and 0.023 acre-feet per year (15% of the water used for irrigation) enters the alluvial aquifer as replacement water.
 - g. Any other information the Commission deems relevant and necessary to operation, monitoring, accounting, or administration of the plan.
31. The Applicant or their successor(s) 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, evidence of the sale and notification to the new owner of their responsibility 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 water use for each lot, metering of well pumping, and how 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 ground water.
 34. All terms and conditions of Determination of Water Right No. 3344-BD must be met.
 35. Pursuant to Designated Basin Rule 5.6.1(F), the Commission retains jurisdiction to modify or revoke approval of this replacement plan if monitoring or operating experience reveals that the plan results in any material injury to water rights of other appropriators or in unreasonable impairment to water quality.
 36. A copy of this Findings and Order shall be recorded by the Applicant in the real property records of El Paso County, so that a title examination of the above described property, or any part thereof, shall reveal to all future purchasers the existence of this replacement plan. The terms and conditions of this replacement plan shall be considered to be a covenant on and running with the subject property.

Replacement Plan - Determination No.: 3344-BD
Aquifer: Arapahoe
Applicant: Angel E. Cordero Jr.

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Dated this 12th day of June, 2018.

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

Keith Vander Horst
Keith Vander Horst, P.E.
Chief of Water Supply, Basins

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Prepared by: nsm

Exhibit A
 Replacement Plan - Determination No.: 3344-BD
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Designated Basin Summary Table for Angel E. Cordero
 Pumping Rate of 1 acre-foot per year for 300 Years from the Apache aquifer
 Section(s): Section 1, 114S, PG3W, 6th P.M.

Year	Depletion as a % of Pumping	Annual Depletion (AF/YR)	Year	Depletion as a % of Pumping	Annual Depletion (AF/YR)
5	0.9	0.009	155	45.6	0.456
10	2.3	0.023	160	46.3	0.462
15	4.1	0.041	165	46.9	0.469
20	6.2	0.062	170	47.5	0.475
25	8.4	0.084	175	48.0	0.480
30	10.7	0.107	180	48.6	0.486
35	13.0	0.130	185	49.1	0.491
40	15.2	0.152	190	49.6	0.496
45	17.4	0.174	195	50.1	0.500
50	19.6	0.196	200	50.5	0.505
55	21.6	0.216	205	50.9	0.509
60	23.6	0.235	210	51.4	0.513
65	25.4	0.254	215	51.8	0.518
70	27.1	0.271	220	52.2	0.522
75	28.8	0.288	225	52.5	0.525
80	30.4	0.304	230	52.9	0.529
85	31.8	0.318	235	53.3	0.532
90	33.2	0.332	240	53.6	0.536
95	34.5	0.345	245	53.9	0.539
100	35.8	0.358	250	54.3	0.542
105	36.9	0.369	255	54.6	0.546
110	38.0	0.380	260	54.9	0.549
115	39.1	0.391	265	55.2	0.551
120	40.1	0.400	270	55.4	0.554
125	41.0	0.410	275	55.7	0.557
130	41.9	0.418	280	56.0	0.560
135	42.7	0.427	285	56.3	0.562
140	43.5	0.435	290	56.5	0.565
145	44.2	0.442	295	56.8	0.567
150	44.9	0.449	300	57.0	0.570

Depletions modeled using AR9 window of AUG3
 Created by Ground Water Commission Staff: nsm on March 19, 2018