

## Ritter, Ashley

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**From:** Sean Albertson <Salbertson@spfwater.com>  
**Sent:** Monday, December 2, 2019 4:04 PM  
**To:** Ritter, Ashley  
**Cc:** Terry Scanlan; Landon Northey  
**Subject:** 63-32423 Mitigation Report  
**Attachments:** 63-32423 Mitigation Plan 2019.pdf

Ashley,

Attached is the 2019 mitigation plan for the Dry Creek subdivision water permit 63-32423. This report is intended to provide water usage data and estimates for 2019 while also serving as a template for future mitigation plans. The 2020 mitigation plan will be submitted prior to the February 15, 2020 deadline.

Please let myself or Terry Scanlan know if you have any questions or comments.

Thanks,

Sean

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WATER RESOURCES

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## MEMORANDUM

**DATE:** December 2, 2019  
**TO:** Ashley Ritter, Idaho Department of Water Resources  
**FROM:** Sean Albertson, Terry Scanlan, SPF Water Engineering  
**CC:** Landon Northey, Boise Hunter Homes  
**RE:** Permit 63-32423 - Dry Creek Mitigation Planning, 2019

This memo will serve as the first mitigation plan associated with water permit 63-32423 (Attachment A). A purpose of this first mitigation plan is to create a template for future plans. All future annual mitigation plans will be submitted to the Idaho Department of Water Resources (IDWR) no later than February 15 of each year as required by the permit conditions.

### Background

Water permit 63-32423 was originally issued to JMM Dry Creek (JMM) in March 2010, and subsequently assigned to BHH Investors 1414 LLC on August 31, 2016. BHH Investors 1414 LLC then assigned the permit to Dry Creek Water Company, LLC on January 30, 2018. SPF Water Engineering (SPF) has prepared this mitigation plan on behalf of Dry Creek Water Company, LLC (Dry Creek).

Permit 63-32423 allows the diversion of up to 5 cfs of groundwater for municipal use within the Dry Creek Ranch community currently under development by Boise Hunter Homes (BHH) in northern Ada County, Idaho. Water is diverted under this permit from a pair of wells.

The permit application was protested by the Dry Creek Rural Neighborhood Association (DCRNA) and several conditions were added to the permit in order to resolve the protest. Condition 14 requires the submission of an annual mitigation plan to IDWR by February 15 of each calendar year in which water is diverted under the permit. The mitigation plan must demonstrate a reduction in the irrigated area under water rights 63-2535, 63-4023B, 63-4086B, 63-7123, 63-17454, and 63-32266 correlating to the anticipated municipal diversion volume for the upcoming year. Specifically, Condition 14 requires the following steps be taken in preparing the annual mitigation plan:

1. Identify and estimate a diversion rate and volume for all uses under the right that will exceed the individual domestic use limits as defined by Idaho Code § 42-111(1)(a) and (b) during the year. Uses under this right that exceed the individual use limits of Idaho Code § 42-111(1)(a) and (b) are considered to be 100% consumptive. Such uses shall be mitigated through reduction of one acre of irrigation use under water

rights 63-2535, 63-4023B, 63-4086B, 63-7123, 63-17454, and 63-32266 for each 2.7 acre-feet of water diverted under this right.

2. Identify all uses under the right that will meet the individual domestic use limits as defined by Idaho Code § 42-111(1)(a) and (b) during the year and estimate an annual diversion volume for these uses. Such uses shall be mitigated through reduction of one acre of irrigation use under water rights 63-2535, 63-4023B, 63-4086B, 63-7123, 63-17454, and 63-32266 for each 4.5 acre-feet of water diverted under this right.
3. Reduce the number of acres to be irrigated under Rights 63-2535, 63-4023B, 63-4086B, 63-7123, 63-17454, and 63-32266 sufficiently to provide the required mitigation for items "a" and "b" above.
4. Report to the Department the volume of water to be used for municipal purposes in connection with this permit during the year.
5. Report the number of acres required to mitigate for the municipal use, along with the water right numbers, diversion rates, and annual diversion volumes associated with those acres.
6. Report the location of the lands that will be irrigated during the forthcoming irrigation season with water diverted under Rights 63-2535, 63-4023B, 63-4086B, 63-7123, 63-17454, and 63-32266. The location shall be reported in map, GIS shapefile, and PLS tabular forms.

### **Estimated Annual Diversion Volume for All Uses**

Both of the municipal production wells used as diversion points under 63-32423 are equipped with flow meters and totalizers. Flow records are maintained by Dry Creek and all data up to August 13, 2019 was provided to SPF. Figure 1 shows the cumulative volume for all uses pumped in acre-feet. Figure 2 shows the average daily volume of water pumped for all uses in gallons per day.

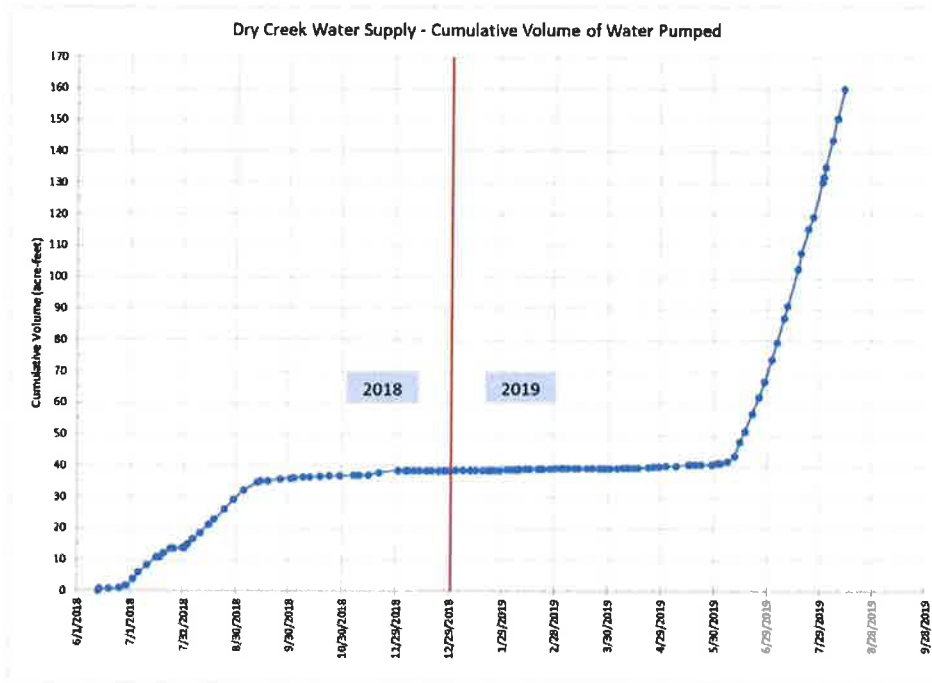


Figure 1. Cumulative Volume Pumped

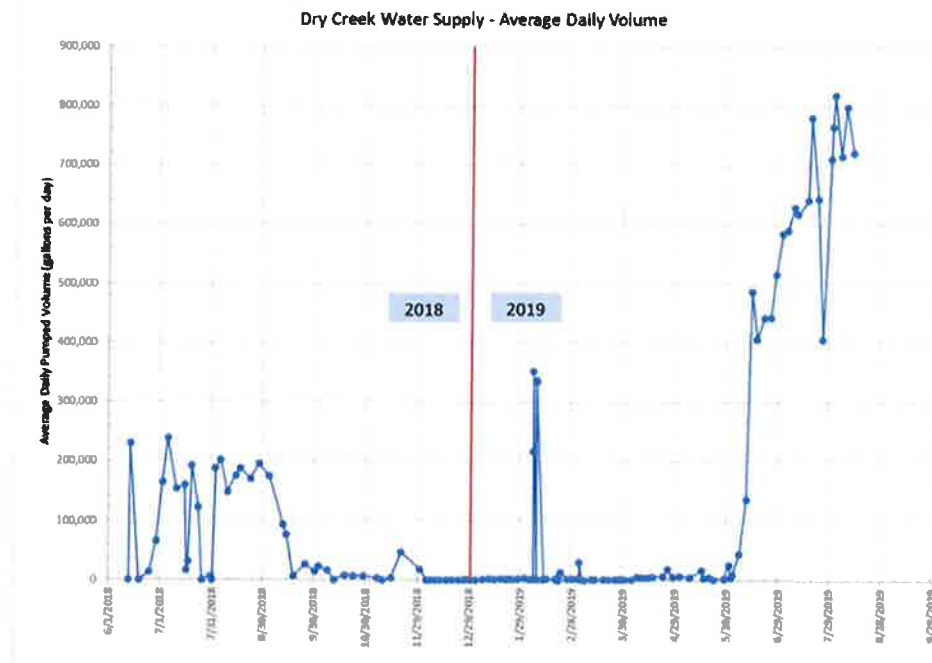


Figure 2. Average Daily Volume

As shown in Figure 1, prior to 2019, the flow records indicate that approximately 39 acre-feet were pumped from the wells. Based on available notes, this water appears to have been diverted for activities related to grading and construction of the subdivision as well as for flow testing related to fire supply and water line flushing. January 1 to August 13, 2019, flow records show that a total of 122 acre-feet were diverted from the production wells.

As shown in Figure 2, diversions from the supply wells for domestic and municipal uses began in 2019 with a distinct daily flow increase starting in June. This volume of water can be divided between domestic uses as defined in Idaho Code § 42-111(1)(a) and (b) and all other uses to fall within the municipal use category.

### **Estimated Annual Diversion Volume for Domestic Uses**

Information provided by BHH indicates that the first homes in Dry Creek Ranch were occupied in March 2019 and approximately 45 homes were occupied as of August 13, 2019. Assuming five homes were occupied in March and a consistent increase in occupancy from March to August, an assumed eight additional homes were occupied each month to reach 45 occupied homes in August. This trend is forecasted to continue through end of 2019 with a total of 77 homes occupied by end of December 2019.

The domestic use of water for these homes is estimated by considering the in-house potable use and the outside landscape irrigation. The in-house potable use is assumed to be 200 gallons per day per home considering new plumbing and modern water efficient fixtures.

The outside irrigation is estimated using the Ada County Assessor's online interactive mapping tool to observe that a typical lot size for this development is near 0.3 acres (13,100 square feet) with approximately 4,600 square feet occupied by the house, deck, porch, garage and driveway. The remaining portion of the lot is therefore estimated to be on average 8,500 sq.ft. and is assumed open for irrigation. Assuming a 150-day irrigation season and water use of 1,800 gpd per home for lawn sprinklers, total diversion for lawn irrigation is then approximately 4.25 acre-feet per acre. The typical irrigation season is assumed mid-April through early October, but records from Dry Creek for 2019 indicate only minimal diversions until June which was likely be due to low occupancy rates in the subdivision.

The domestic water usage per home in the non-irrigation season (January to May and October to December) is estimated to be 200 gpd per home and 2,000 gpd per home in the irrigation season (mid-April through September). However, if 2,000 gpd per home is used in April and May, the estimated diversion exceeds the value recorded by Dry Creek's water system operator for those months. Instead, 300 gpd per home was used for April and May to conservatively estimate water use with a slight increase from non-irrigation months. This method results in a lower domestic use estimate and higher municipal use estimate for April and May, therefore increasing the mitigation acreage requirement from those months. Using these assumptions, the estimated and projected annual diversion volume for domestic use in 2019 is 39 acre-feet as summarized in Table 1.

Table 1. Estimate Domestic Water Use by Month

Month	# Occupied Homes	Est. Vol. (gal)	Est. Domestic Vol. (af)
January	0	0	0.00
February	0	0	0.00
March	5	31,000	0.10
April	13	117,000	0.36
May	21	195,300	0.60
June	29	1,740,000	5.34
July	37	2,294,000	7.04
August	45	2,790,000	8.56
September	53	3,180,000	9.76
October	61	1,476,200	4.53
November	69	414,000	1.27
December	77	477,400	1.47
<b>SUM:</b>		<b>12,714,900</b>	<b>39.02</b>

Figure 3 shows the monthly volume of water usage under the domestic use group versus the municipal use group. In August for example, the domestic use is approximately 13% of the total volume for that month. The system's notes indicate that Well 1 was pumping between 416 gpm and 1,229 gpm in August. Assuming the domestic use is 13% of the diversion rate, 54 to 160 gpm of the total diversion rate is attributed to the domestic use.

Any additional water usage is then attributed toward municipal diversions.

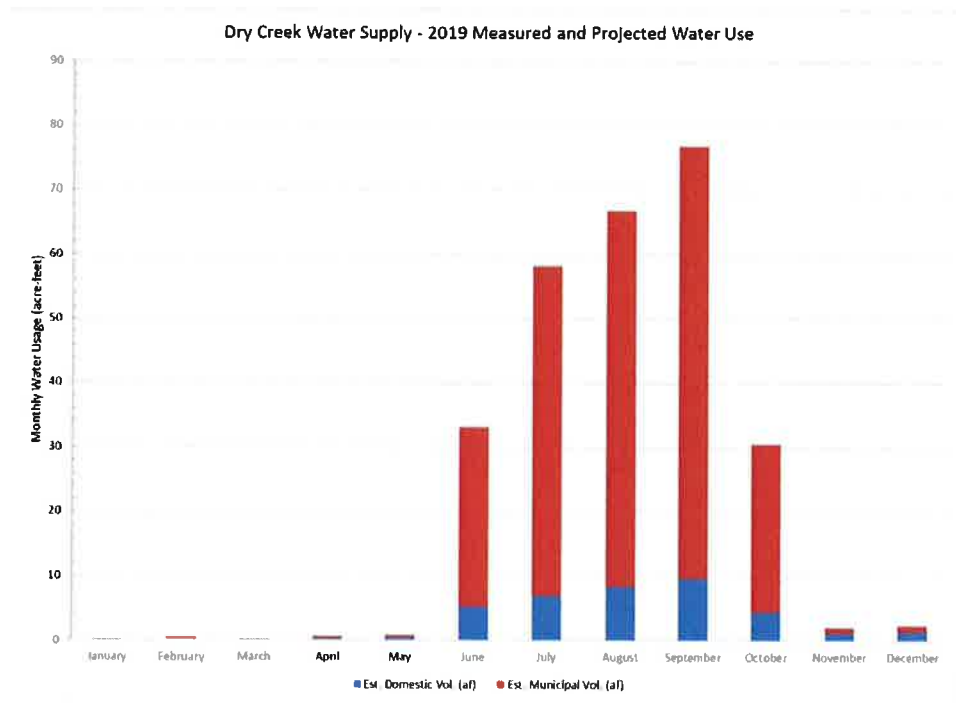


Figure 3. Monthly Volume by Use

**Estimated Annual Diversion Volume for All Uses Exceeding Domestic Use**

The municipal use diversion rate and volume are calculated as the difference between the total volume of water produced and the amount estimated for the domestic use definition. Table 2 shows the recorded volume of water (all uses) for each month from January to mid-August 2019 and projections of water usage (all uses) for the balance of 2019.

Table 2. Summary of Measured and Projected Water Usage - 2019 (All Uses)

Month	Recorded Vol. (af)	Est. Vol. (af)	Combined Vol. (af)
January	0.221	--	0.221
February	0.408	--	0.408
March	0.172	--	0.172
April	0.672	--	0.672
May	0.856	--	0.856
June	33.143	--	33.143
July	58.196	--	58.196
August	28.021	38.798	66.819
September	--	76.842	76.842
October	--	30.576	30.576
November	--	2.141	2.141
December	--	2.462	2.462
<b>SUM:</b>	<b>121.69</b>	<b>150.82</b>	<b>272.51</b>

Table 3 shows the estimate of the monthly volume of water for municipal use as the difference between total pumped volume (Table 2) and the domestic use (Table 1).

Table 3. Summary of Estimated Municipal Use - 2019

Month	TOTAL USE	DOMESTIC EST.	MUNICIPAL EST.
January	0.221	0.000	0.221
February	0.408	0.000	0.408
March	0.172	0.095	0.077
April	0.672	0.359	0.313
May	0.856	0.599	0.257
June	33.143	5.340	27.803
July	58.196	7.041	51.156
August	66.819	8.563	58.256
September	76.842	9.760	67.082
October	30.576	4.531	26.046
November	2.141	1.271	0.870
December	2.462	1.465	0.997
<b>SUM:</b>	<b>272.51</b>	<b>39.02</b>	<b>233.49</b>

Under these assumptions, total water use during 2019 is projected to be 272 acre-feet with 39 acre-feet attributed to domestic water uses and 233 acre-feet for municipal use. The domestic use estimate falls below the domestic use limits defined by Idaho Code §42-111(1)(a) and (b).

The diversion rate associated with the municipal use is calculated as the difference between the system's total diversion rate and the portion attributed to domestic. The 233 acre-feet diversion volume estimate for municipal use in 2019 is higher than what would be typically expected for a subdivision of this size. The high diversion volume is due to the supply wells also being used to provide irrigation water to crop fields south and west of the subdivision which are part of the place of use authorized under 63-2535, 63-4023B, 63-4086B, 63-7123, 63-17454, and 63-32266. These fields were disconnected from the existing irrigation well and distribution lines in 2019 to accommodate construction of the subdivision. According to Dry Creek representatives, there are a total of 50 acres irrigated using the municipal wells in 2019 with 30 acres of alfalfa and 20 acres of sod. Assuming total irrigation season diversion volumes of 4 acre-feet per acre of alfalfa and sod, the total diversion volume to irrigate the crops in 2019 is then 200 acre-feet. Removing this from the total estimated diversion volume of 233 acre-feet results in 33 acre-feet for municipal uses within the subdivision for 2019. While 33 acre-feet is much more reasonable for municipal diversions within a subdivision of this size, all 233 acre-feet diverted from the wells will be counted as 2019 municipal use to ensure that adequate mitigation is accomplished.

### Mitigation Area

The permit conditions for 63-32423 require that the number of acres irrigated under Dry Creek's irrigation water rights (63-2535, 63-4023B, 63-4086B, 63-7123, 63-17454, and 63-32266) be reduced for a given year based on the estimated domestic and municipal water usage under 63-32423. The irrigated area for the listed rights must be reduced by one acre for every 2.7 acre-feet of estimated municipal use and by one acre for every 4.5 acre-feet of estimated domestic use. To mitigate for the 2019 estimated municipal diversion volume of 233 acre-feet, the irrigated area must be reduced by 86 acres. An additional 9 acres must be removed from the irrigated area to mitigate for the estimated domestic diversion volume of 39 acre-feet. This brings the total mitigation acreage to 95 acres (Table 4).

Table 4. 2019 Mitigation Summary

Water Use	Diversion Estimate	Reduction Unit	Mitigation Acres
Municipal	233.49	2.7	86.48
Domestic	39.02	4.5	8.67
<b>SUM:</b>			95.15

Dry Creek's irrigation rights currently authorize irrigation on a combined total of 404 acres in a single irrigation season within a 739-acre permissible place of use, as tabulated in Table 5. After accounting for 95 acres of mitigation, the allowable irrigation area for 2019 is 309 acres. Based on information provided by Dry Creek, the actual irrigated area in 2019 is approximately 255 acres, as tabulated in Table 5. This is well below the allowable area of 309 acres, so the mitigation requirements are currently being met. In fact, Dry Creek has actually removed more acres from irrigation than required by the mitigation with 132.1 acres converted to developed land for the subdivision. After removing the 2019 mitigation requirement of 95.1 acres, this

leaves an additional 37 acres which can be used to mitigate domestic and municipal water use under 63-32423 in 2020. Table 7 tabulates the 132.1 acres taken out of irrigation in 2019. Attachment B depicts the licensed place of use under Dry Creek’s irrigation rights (aerial image background from July 2018), the area being irrigated in 2019, and the acres removed from irrigation in 2019 which can be used for mitigation.

Table 5. Place of Use for Irrigation on Dry Creek

TWP	RGE	SEC	NE				NW				SW				SE				Total
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
5N	1E	25									14.4	0.4	9	35.7		10.9	29.7	32.8	132.9
		35	40.3	37	39.2	40.3					27.9			1.9	36.4	25.7	0.4	15.8	264.9
		36	40.5	40.5	34.9	20.2	40.5	40.5	38.9	37.9	13				1.2	8.9			317
5N	2E	30											24.2						24.2
																	739		

Table 6. Acres Irrigated with Decreed Irrigation Rights, 2019

TWP	RGE	SEC	NE				NW				SW				SE				Total
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
5N	1E	25												6.4			29.7	32.8	68.9
		35	0.7	31	16	11.4													59.1
		36	40.5	40.5			16		8										105
5N	2E	30											22.1						22.1
																	255.1		

Table 7. Acres Taken Out of Irrigation for Mitigation, 2019

TWP	RGE	SEC	NE				NW				SW				SE				Total
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
5N	1E	25											3.9	15.6					19.5
		35	33.9	12.6															46.5
		36					22.9	40.5	1.7	1									66.1
5N	2E	30																	0
																	132.1		

**Water Right Mitigation**

The combined diversion volume for domestic and municipal uses of water under permit 63-32423 in 2019 is projected to be 233 acre-feet. This volume of water is mitigated by the required reduction of 95 irrigated acres from combined water rights 63-2535, 63-4023B, 63-4086B, 63-7123, 63-17454, and 63-32266. Actual reduction of irrigated acres was 132.1 acres, which provides additional available acres for mitigation in future years.

The combined diversion rate for Dry Creek’s irrigation rights is listed as 7.48 cfs with a combined annual volume limit of 1,764 acre-feet on a maximum of 404 irrigated acres. Under these limits, the combined diversion rate per irrigated acre is 0.019 cfs and the combined diversion volume per irrigated acre is 4.37 acre-feet. The 132.1 acres taken out of irrigation from the combined water rights then offers a reduction in diversion rate of 2.51 cfs and a volume reduction of 577.3 acre-feet.

**Attachment A**  
**Water Permit 63-32423**

State of Idaho  
 Department of Water Resources  
**Permit to Appropriate Water**

NO. 63-32423

Priority: August 22, 2006

Maximum Diversion Rate: 5.00 CFS  
 Maximum Diversion Volume: 1,764.0 AF

This is to certify, that JMM DRY CREEK LLC  
 C/O LAND BARON INVESTMENTS  
 5275 S DURANGO DR  
 LAS VEGAS NV 89113

has applied for a permit to appropriate water from:

**Source:** GROUND WATER

and a permit is APPROVED for development of water as follows:

<u>BENEFICIAL USE</u>	<u>PERIOD OF USE</u>	<u>RATE OF DIVERSION</u>	<u>ANNUAL VOLUME</u>
MUNICIPAL	01/01 to 12/31	5.00 CFS	1,764.0 AF

**LOCATION OF POINT(S) OF DIVERSION:**

GROUND WATER NE¼NE¼ Sec. 36, Twp 05N, Rge 01E, B.M. ADA County  
 GROUND WATER NE¼NE¼ Sec. 36, Twp 05N, Rge 01E, B.M. ADA County

**CONDITIONS OF APPROVAL**

1. Proof of application of water to beneficial use shall be submitted on or before **March 01, 2015**.
2. Subject to all prior water rights.
3. Project construction shall commence within one year from the date of permit issuance and shall proceed diligently to completion unless it can be shown to the satisfaction of the Director of the Department of Water Resources that delays were due to circumstances over which the permit holder had no control.
4. Right holder shall comply with the drilling permit requirements of Section 42-235, Idaho Code and applicable Well Construction Rules of the Department.
5. Place of use is within the area served by the public water supply system of JMM Dry Creek LLC. The place of use is generally located within Sections 1 and 2, Township 4 North, Range 1 East; Sections 25, 35, and 36, Township 5 North, Range 1 East; and Section 30, Township 5 North, Range 2 East; B.M.
6. A map depicting the place of use boundary for this water right at the time of this approval is attached to this document for illustrative purposes.
7. Water bearing zone to be appropriated is 100 ft. to 300 ft. below ground surface.
8. The right holder shall maintain a totalizing measuring device of a type approved by the Department as a part of the diverting works.
9. After specific notification by the Department, the right holder shall report to the Department the amount of water diverted annually in connection with this right.
10. Diversion and use of water with a temperature greater than 85 degrees Fahrenheit is not authorized under this right.
11. Rights 63-2535, 63-4023B, 63-4086B, 63-7123, 63-17454, 63-32266, and 63-32423 when combined shall not exceed a total diversion rate of 7.84 cfs and a total annual maximum diversion volume of 1764.0 af at the field headgate.
12. The right holder shall carry out the "Dry Creek Ranch Aquifer Monitoring Plan: April 2008." See Exhibit E of the January 14, 2009, Water Rights Agreement between Dry Creek Rural Neighborhood Association and JMM Dry Creek LLC.

State of Idaho  
Department of Water Resources

# Permit to Appropriate Water

NO. 63-32423

## CONDITIONS OF APPROVAL CONTINUED

13. To prevent injury to senior water right holders:
  - a. Diversion under this right shall be initially limited to 1,234.8 af (70% of 1764.0 af) for a minimum period of three years and until such time that the right holder can demonstrate to the Director that the aquifer can sustain greater diversions under the right. Demonstration shall require (1) a minimum of two years with recorded annual diversions under the right in excess of 1,000 afa, (2) water levels at a well in the NENE, Sec. 36, T05N, R01E, B.M., also known as the Jeker Big Pump well and as USGS well no. 05N01E36AAB1, (or an acceptable replacement well) that recover on an annual basis to at least 60 feet below ground surface, and (3) water-level monitoring for other wells monitored by the right holder in accordance with condition no. 12 does not show water level declines that would injure senior water rights owners.
  - b. Upon successful demonstration to the Director of sustainable aquifer capacity to support diversions under this right in excess of 1,234.8 afa, the right holder may increase the annual volume diverted under the right up to a maximum of 1764 afa.
  - c. The Director shall have the authority to reduce the annual diversion volume limits under this right at any time upon (1) a showing that diversions under the right are injuring senior water rights and (2) failure of the right holder to adequately mitigate injury to senior water rights to the satisfaction of the Director.
  - d. The diversion volume limits under right 63-32423 shall not be reduced or limited due to water-level declines or injury to senior rights resulting from diversions under water rights with priority dates junior to right 63-32423.
  - e. This condition is not intended to establish a reasonable pumping level pursuant to Idaho Code § 42-226.
14. For this condition, the term "use" shall be defined as the water delivered to and used on a single parcel of land identified in the county records and served water under this right. No later than February 15 of each calendar year during the authorized development period for this permit, the right holder shall:
  - a. Identify and estimate a diversion rate and volume for all uses under the right that will exceed the individual domestic use limits as defined by Idaho Code § 42-111(1)(a) and (b) during the year. Uses under this right that exceed the individual use limits of Idaho Code § 42-111(1)(a) and (b) are to be considered 100% consumptive. Such uses shall be mitigated through reduction of one acre of irrigation use under water rights 63-2535, 63-4023B, 63-4086B, 63-7123, 63-17454, and 63-32266 for each 2.7 acre feet of water diverted under this right.
  - b. Identify all uses under the right that will meet the individual domestic use limits as defined by Idaho Code § 42-111(1)(a) and (b) during the year and estimate an annual diversion volume for these uses. Such uses shall be mitigated through reduction of one acre of irrigation use under water rights 63-2535, 63-4023B, 63-4086B, 63-7123, 63-17454, and 63-32266 for each 4.5 acre feet of water diverted under this right.
  - c. Reduce the number of acres to be irrigated under Rights 63-2535, 63-4023B, 63-4086B, 63-7123, 63-17454, and 63-32266, sufficiently to provide the required mitigation for items "a" and "b" above.
  - d. Report to the Department the volume of water to be used for municipal purposes in connection with this permit during the year.
  - e. Report the number of acres required to mitigate for the municipal use, along with the water right numbers, diversion rates, and annual diversion volumes associated with those acres.
  - f. Report the location of the lands that will be irrigated during the forthcoming irrigation season with water diverted under Rights 63-2535, 63-4023B, 63-4086B, 63-7123, 63-17454, and 63-32266. The location shall be reported in map, GIS shapefile, and PLS tabular forms.

State of Idaho  
Department of Water Resources  
**Permit to Appropriate Water**

NO. 63-32423

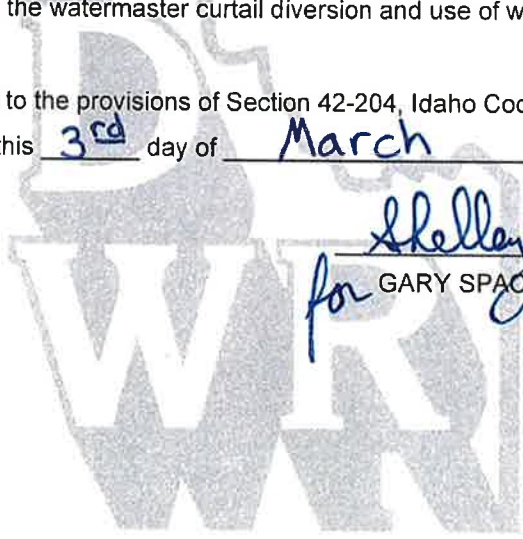
CONDITIONS OF APPROVAL CONTINUED

15. Once designated in an annual report as mitigation for the use of water for municipal purposes under this right, irrigation of designated lands under Rights 63-2535, 63-4023B, 63-4086B, 63-7123, 63-17454, and 63-32266 shall not be resumed unless this right is reduced through the appropriate administrative or legal process, as determined by the Department.
16. Upon receiving the right holder's annual report, the Department will change the official records for Rights 63-2535, 63-4023B, 63-4086B, 63-7123, 63-17454, and 63-32266 to show where diversion and use of water is not authorized because the rights, or portions thereof, are being dedicated to mitigation purposes.
17. The owner of Right 63-32423 shall maintain ownership of the mitigation portions of Rights 63-2535, 63-4023B, 63-4086B, 63-7123, 63-17454, and 63-32266.
18. The diversion and use of water described in Right 63-32423 may be subject to additional limitations agreed to by the protestant(s) and the right holder under separate agreement to which the Department is not a party and which may be enforceable by a court of law.
19. Noncompliance with any condition of this right, including the requirement for mitigation, is cause for the director to issue a notice of violation, cancel or revoke the right, or, if the right is included in a water district, request that the watermaster curtail diversion and use of water.

This permit is issued pursuant to the provisions of Section 42-204, Idaho Code. Witness the signature of the Director, affixed at Boise, this 3<sup>rd</sup> day of March, 20 10.



for GARY SPACKMAN, Interim Director





**Attachment B**  
**2019 Mitigation Planning Map**

