

**LANDOWNER AFFIDAVIT AND TESTIMONY**

**APPENDIX A**

**BEFORE THE WYOMING DEPARTMENT OF  
ENVIRONMENTAL QUALITY, WATER QUALITY DIVISION**

**RENEWAL OF MERIT ENERGY )  
COMPANY'S PERMITS TO )  
DISCHARGE, PERMIT NUMBERS )  
WY0000175 AND WY0000680 )**

**AFFIDAVIT OF FRANK RHODES**

I, Frank Rhodes, being duly sworn upon his oath, being of lawful age and otherwise competent to testify and having personal knowledge of the matters contained herein do state:

1. I was a rancher on six to eight miles of Cottonwood Creek from 1948 to 1993, just north of Hamilton Dome, Wyoming.
2. During this time, I ranched approximately 13,000 acres of deeded land, and approximately 26,000 acres of land leased from the Bureau of Land Management.
3. I ranched on Cottonwood Creek prior to the time when produced water was discharged from the Hamilton Dome oil field into Cottonwood Creek.
4. Prior to produced water being discharged, Cottonwood Creek would only flow from approximately March to July or August, and would sometimes be dry as early as June. For the rest of the year, Cottonwood Creek was dry with the exception of intermittent flows of rain or snow melt.
5. Prior to the discharge of produced water, I had to use well water to water my livestock.
6. After produced water was discharged into the Cottonwood Creek, the creek would flow year-round.
7. My ranch, which was sold in 1993, has water rights for water out of Cottonwood Creek and one of the unnamed tributaries into which the produced water is discharged.
8. I used the produced water to water my livestock and irrigate hay. The produced water was extremely valuable to my ranching operations.
9. Additionally, after produced water was discharged, I witnessed a large increase in the number of ducks, geese, pheasants, and mule and white-tail deer on or around Cottonwood Creek.

10. The produced water from the Hamilton Dome oil field has been invaluable to my ranching operations as well as the other ranches and farms that are along Cottonwood Creek below the confluence the produced water with Cottonwood Creek, and has created a very beneficial environment for the area's wildlife.

11. Without the produced water, Cottonwood Creek and the surrounding area would return to the dry, arid condition that existed prior to Cottonwood Creek being a year-round stream due to produced water, and ranchers, farmers, and the wildlife would suffer greatly.

**FURTHER AFFIANT SAYETH NAUGHT.**

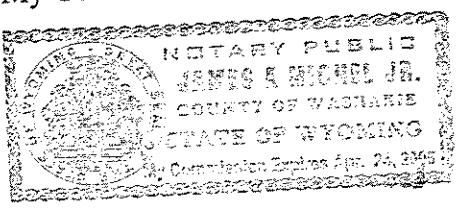
Frank Rhodes  
Frank Rhodes

STATE OF WYOMING )  
 )SS:  
COUNTY OF HOT SPRINGS )

The foregoing instrument was subscribed and sworn to before me by Frank Rhodes on the 26 day of August, 2002.

James A. Miller Jr.  
Notary Public

My Commission Expires: April 24, 2004



HAMILTON DOME WATER DISCHARGES  
TO COTTONWOOD CREEK:

**LANDOWNER ASSESSMENTS**

GROUNDWATER HYDROLOGY ISSUES

1. Does the current flow of Cottonwood Creek affect the water table level on your property? If yes, do you see increased vegetation in areas of high groundwater table? (i.e. along stream banks) How much? ( 5 feet, 5 yards, 20 yards, etc.)
2. How many additional livestock can you operate with due to this increased vegetation from the raised groundwater table? (None, 5%, 10%, 20%, etc.)
3. Have you seen any affect of the water table in any water wells in the area? If yes, "What is the depth of the well(s)?"

SURFACE WATER HYDROLOGY ISSUES

*States West will assess the current hydrology of Cottonwood Creek and predict the hydrology if the discharges were to cease.*

1. Do you have any knowledge of conditions of Cottonwood Creek before 1950? If Yes: How many years out of 10 would it normally be dry at some time during the year? What month would it normally go dry? In the spring, when would water start running in the stream above Hamilton Dome?
2. Do you irrigate with water solely from Hamilton Dome discharges?
3. Do you irrigate with water that is mixed with runoff? If yes: How do you determine if the water quality is adequate for irrigation?
4. How many times a year do you irrigate?
5. Have you seen any impact to your fields from irrigating with Cottonwood Creek water?
6. Have you ever seen any adverse health effects on livestock or wildlife from Cottonwood Creek?

HAMILTON DOME WATER DISCHARGES  
TO COTTONWOOD CREEK:

**LANDOWNER ASSESSMENTS**

GROUNDWATER HYDROLOGY ISSUES

1. Does the current flow of Cottonwood Creek affect the water table level on your property? If yes, do you see increased vegetation in areas of high groundwater table? (i.e. along stream banks) How much? ( 5 feet, 5 yards, 20 yards, etc.) YES, YES
2. How many additional livestock can you operate with due to this increased vegetation from the raised groundwater table? (None, 5%, 10%, 20%, etc.)
3. Have you seen any affect of the water table in any water wells in the area? If yes, "What is the depth of the well(s)?" NO

SURFACE WATER HYDROLOGY ISSUES

*States West will assess the current hydrology of Cottonwood Creek and predict the hydrology if the discharges were to cease.*

1. Do you have any knowledge of conditions of Cottonwood Creek before 1950? If Yes: How many years out of 10 would it normally be dry at some time during the year? What month would it normally go dry? In the spring, when would water start running in the stream above Hamilton Dome? NO
2. Do you irrigate with water solely from Hamilton Dome discharges? YES
3. Do you irrigate with water that is mixed with runoff? If yes: How do you determine if the water quality is adequate for irrigation? YES, historic use of this same water proves it is adequate
4. How many times a year do you irrigate? most fields get 2 per year
5. Have you seen any impact to your fields from irrigating with Cottonwood Creek water? NO
6. Have you ever seen any adverse health effects on livestock or wildlife from Cottonwood Creek? NO

HAMILTON DOME WATER DISCHARGES  
TO COTTONWOOD CREEK:

LANDOWNER ASSESSMENTS

GROUNDWATER HYDROLOGY ISSUES

1. Does the current flow of Cottonwood Creek affect the water table level on your property? If yes, do you see increased vegetation in areas of high groundwater table? (i.e. along stream banks) How much? ( 5 feet, 5 yards, 20 yards, etc.)
2. How many additional livestock can you operate with due to this increased vegetation from the raised groundwater table? (None, 5%, 10%, 20%, etc.)
3. Have you seen any affect of the water table in any water wells in the area? If yes,  
"What is the depth of the well(s)?"

I CAN'T REALLY ANSWER THESE FIRST THREE QUESTIONS BECAUSE  
THE CREEK HAS ALWAYS RUN SINCE WE HAVE OWNED THE  
PROPERTY

SURFACE WATER HYDROLOGY ISSUES

*States West will assess the current hydrology of Cottonwood Creek and predict the hydrology if the discharges were to cease.*

1. Do you have any knowledge of conditions of Cottonwood Creek before 1950? If Yes: How many years out of 10 would it normally be dry at some time during the year? What month would it normally go dry? In the spring, when would water start running in the stream above Hamilton Dome?
2. Do you irrigate with water solely from Hamilton Dome discharges?
3. Do you irrigate with water that is mixed with runoff? If yes: How do you determine if the water quality is adequate for irrigation?
4. How many times a year do you irrigate?
5. Have you seen any impact to your fields from irrigating with Cottonwood Creek water?
6. Have you ever seen any adverse health effects on livestock or wildlife from Cottonwood Creek? NO

ECONOMIC ISSUES

1. What is your typical season/period of use of water from Cottonwood Creek?

Begin: \_\_\_\_\_

End: \_\_\_\_\_

2. For what purpose(s) is the water used? (May indicate more than one answer)

Livestock watering (immediate use): \_\_\_\_\_

Livestock watering (stored/impounded for later use): \_\_\_\_\_

Irrigate Pastures: \_\_\_\_\_

Irrigate Cropland: \_\_\_\_\_

3. How long has your operation used this water?

4. If you checked livestock watering in Question #2, what kind and how many head of livestock are supported by the water?

\_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_  
Cattle / Sheep / Horses  
(cow-calf pairs)

5. Does the livestock watering occur on your own land, leased private land, or federal/state grazing allotments?

6. If you checked irrigation in Question #2, please describe the type and use of the irrigated acreage.

Acres: \_\_\_\_\_/\_\_\_\_\_  
Pasture / cropland

If cropland, the type of crop grown: \_\_\_\_\_

Average productivity/acre over the past 3 seasons: \_\_\_\_\_

If the crop is alfalfa or grass hay, is it used as winter feed for your herd or is it sold? \_\_\_\_\_

7. How many people, including family members, work or are employed by your operation?

Year-round: \_\_\_\_\_

Seasonal: \_\_\_\_\_

Please review the analysis of the effects of the loss of Hamilton Dome produced water on Cottonwood Creek (i.e., reduced average flow volumes by month). Then address questions 8-12:

8. How would a reduction/loss of the water affect your operation, (e.g., reduce herd size by \_\_\_\_\_, reduce crop production by \_\_\_\_\_%, or \_\_\_\_\_)?
9. Estimate the reduction in your operations annual net income associated with the effects identified in Question #8 above? \_\_\_\_\_
10. Is there an alternative source of water available to replace this water? If yes, please describe, including the costs associated with obtaining water from the alternative source. \_\_\_\_\_
11. How would you adjust your operation's labor to deal with the effects associated with the reduction in water? \_\_\_\_\_
12. Would your operation remain viable with the reduction in volume or the loss of this water?

#### ECOLOGICAL ISSUES

1. What changes have you noticed with regard to wildlife use of the area since the stream became perennial rather than intermittent?
2. Has the ability to produce alfalfa using discharge water increased use of the area by wildlife, especially big game and game birds?
3. What would become of the irrigated hayfields if you could no longer irrigate?
4. Has there been a change in plants (more willows, cottonwoods, marshes, etc.?)



ECONOMIC ISSUES

1. What is your typical season/period of use of water from Cottonwood Creek?

Begin: JUNE  
End: OCTOBER

2. For what purpose(s) is the water used? (May indicate more than one answer)

Livestock watering (immediate use): X  
Livestock watering (stored/impounded for later use): \_\_\_\_\_  
Irrigate Pastures: \_\_\_\_\_  
Irrigate Cropland: \_\_\_\_\_

3. How long has your operation used this water?

3 YEARS

4. If you checked livestock watering in Question #2, what kind and how many head of livestock are supported by the water?

1 Cattle / 1 Sheep / 25 Horses  
(cow-calf pairs)

5. Does the livestock watering occur on your own land, leased private land, or federal/state grazing allotments? PRIVATE LAND

6. If you checked irrigation in Question #2, please describe the type and use of the irrigated acreage.

Acres: 320 / \_\_\_\_\_  
Pasture / cropland

If cropland, the type of crop grown: \_\_\_\_\_

Average productivity/acre over the past 3 seasons: \_\_\_\_\_

If the crop is alfalfa or grass hay, is it used as winter feed for your herd or is it sold? \_\_\_\_\_

7. How many people, including family members, work or are employed by your operation?

Year-round: \_\_\_\_\_  
Seasonal: 4

Please review the analysis of the effects of the loss of Hamilton Dome produced water on Cottonwood Creek (i.e., reduced average flow volumes by month). Then address questions 8-12:

8. How would a reduction/loss of the water affect your operation, (e.g., reduce herd size by 100%, reduce crop production by \_\_\_\_\_%, or \_\_\_\_\_)?
9. Estimate the reduction in your operations annual net income associated with the effects identified in Question #8 above? 5000 to 12,000
10. Is there an alternative source of water available to replace this water? If yes, please describe, including the costs associated with obtaining water from the alternative source. Possible well, 8,000
11. How would you adjust your operation's labor to deal with the effects associated with the reduction in water? we would be out of business
12. Would your operation remain viable with the reduction in volume or the loss of this water? NO

#### ECOLOGICAL ISSUES

1. What changes have you noticed with regard to wildlife use of the area since the stream became perennial rather than intermittent? WE havent owned The LAND Long Enough to ANSWER This QUESTION
2. Has the ability to produce alfalfa using discharge water increased use of the area by wildlife, especially big game and game birds?
3. What would become of the irrigated hayfields if you could no longer irrigate?
4. Has there been a change in plants (more willows, cottonwoods, marshes, etc.?)  
No Change. BUT we have lots of willows and trees on our property.

Irby Creek Mule Co.

Jeff Van Antwerp  
224 S. 9<sup>th</sup> Street  
Thermopolis, Wyo  
82443

Clay Van Antwerp  
805 Bushnell  
Rock Springs, WY  
307-362-4898

ECONOMIC ISSUES

1. What is your typical season/period of use of water from Cottonwood Creek?

Begin: March  
End: Nov

2. For what purpose(s) is the water used? (May indicate more than one answer)

Livestock watering (immediate use):   
Livestock watering (stored/impounded for later use):   
Irrigate Pastures:   
Irrigate Cropland:

3. How long has your operation used this water? mine for 2 year, but this ranch has used the water since 1905 that I know of and probably longer

4. If you checked livestock watering in Question #2, what kind and how many head of livestock are supported by the water?

<u>450</u>	/	<u>40</u>	/	<u>25</u>
Cattle	/	Sheep	/	Horses

(cow-calf pairs)

5. Does the livestock watering occur on your own land, leased private land, or federal/state grazing allotments? my own + state and federal allot.

6. If you checked irrigation in Question #2, please describe the type and use of the irrigated acreage.

Acres: 661 acres  
Pasture / cropland

If cropland, the type of crop grown: \_\_\_\_\_

Average productivity/acre over the past 3 seasons: 2 ton per acre hay

If the crop is alfalfa or grass hay, is it used as winter feed for your herd or is it sold? feed

7. How many people, including family members, work or are employed by your operation?

Year-round: 7  
Seasonal: 4

Please review the analysis of the effects of the loss of Hamilton Dome produced water on Cottonwood Creek (i.e., reduced average flow volumes by month). Then address questions 8-12:

8. How would a reduction/loss of the water affect your operation, (e.g., reduce herd size by 50, reduce crop production by 50 %, or more)?
9. Estimate the reduction in your operations annual net income associated with the effects identified in Question #8 above? 100,000<sup>00</sup> or more
10. Is there an alternative source of water available to replace this water? If yes, please describe, including the costs associated with obtaining water from the alternative source. NO. not that I'm aware of
11. How would you adjust your operation's labor to deal with the effects associated with the reduction in water? I would have to let the small go.
12. Would your operation remain viable with the reduction in volume or the loss of this water? NO

#### ECOLOGICAL ISSUES

1. What changes have you noticed with regard to wildlife use of the area since the stream became perennial rather than intermittent? N/A
2. Has the ability to produce alfalfa using discharge water increased use of the area by wildlife, especially big game and game birds? lots of wild life in this area
3. What would become of the irrigated hayfields if you could no longer irrigate? the would become weed fields
4. Has there been a change in plants (more willows, cottonwoods, marshes, etc.?) N/A

HAMILTON DOME WATER DISCHARGES  
TO COTTONWOOD CREEK:

LANDOWNER ASSESSMENTS

GROUNDWATER HYDROLOGY ISSUES

1. Does the current flow of Cottonwood Creek affect the water table level on your property? If yes, do you see increased vegetation in areas of high groundwater table? (i.e. along stream banks) How much? ( 5 feet, 5 yards, 20 yards, etc.)  
*YES - 10 yds*
2. How many additional livestock can you operate with due to this increased vegetation from the raised groundwater table? (None, 5%, 10%, 20%, etc.)
3. Have you seen any affect of the water table in any water wells in the area? If yes, "What is the depth of the well(s)?" *YES 80'*

SURFACE WATER HYDROLOGY ISSUES

*States West will assess the current hydrology of Cottonwood Creek and predict the hydrology if the discharges were to cease.*

1. Do you have any knowledge of conditions of Cottonwood Creek before 1950?  *NO*  
Yes: How many years out of 10 would it normally be dry at some time during the year? What month would it normally go dry? In the spring, when would water start running in the stream above Hamilton Dome?
2. Do you irrigate with water solely from Hamilton Dome discharges? *NO - BUT SOLELY FROM COTTONWOOD CREEK*
3. Do you irrigate with water that is mixed with runoff? If yes: How do you determine if the water quality is adequate for irrigation? *YES - CLARITY & WATER TESTING*
4. How many times a year do you irrigate? *8-9 MONTHS*
5. Have you seen any impact to your fields from irrigating with Cottonwood Creek water? *POSITIVE IMPACT ONLY*
6. Have you ever seen any adverse health effects on livestock or wildlife from Cottonwood Creek? *NO*

ECONOMIC ISSUES

1. What is your typical season/period of use of water from Cottonwood Creek?

Begin: MARCH  
End: NOVEMBER

2. For what purpose(s) is the water used? (May indicate more than one answer)

Livestock watering (immediate use): YES  
Livestock watering (stored/impounded for later use): Well  
Irrigate Pastures: YES  
Irrigate Cropland: YES

3. How long has your operation used this water?

This property has used Cottonwood Creek water since 1904

4. If you checked livestock watering in Question #2, what kind and how many head of livestock are supported by the water?

200 / 0 / 2  
Cattle / Sheep / Horses  
(cow-calf pairs)

5. Does the livestock watering occur on your own land, leased private land, or federal/state grazing allotments? OWN LAND

6. If you checked irrigation in Question #2, please describe the type and use of the irrigated acreage.

Acres: 340 / 300  
Pasture / cropland

If cropland, the type of crop grown: HAY

Average productivity/acre over the past 3 seasons: 4TON/ACRE

If the crop is alfalfa or grass hay, is it used as winter feed for your herd or is it sold? BOTH

7. How many people, including family members, work or are employed by your operation?

Year-round: 5  
Seasonal: 6

Please review the analysis of the effects of the loss of Hamilton Dome produced water on Cottonwood Creek (i.e., reduced average flow volumes by month). Then address questions 8-12:

8. How would a reduction/loss of the water affect your operation, (e.g., reduce herd size by 50%, reduce crop production by 80%, or \_\_\_\_\_)?
9. Estimate the reduction in your operations annual net income associated with the effects identified in Question #8 above? Cause for Liquidation
10. Is there an alternative source of water available to replace this water? If yes, please describe, including the costs associated with obtaining water from the alternative source. NONE
11. How would you adjust your operation's labor to deal with the effects associated with the reduction in water? Property would be liquidated  
ALL associated jobs would be lost.
12. Would your operation remain viable with the reduction in volume or the loss of this water? NO - ALL operations would cease.

#### ECOLOGICAL ISSUES

1. What changes have you noticed with regard to wildlife use of the area since the stream became perennial rather than intermittent?  
MORE Wildlife of every kind
2. Has the ability to produce alfalfa using discharge water increased use of the area by wildlife, especially big game and game birds? YES TO BOTH
3. What would become of the irrigated hayfields if you could no longer irrigate?  
DRY LAND PASTURE - WASTE LAND
4. Has there been a change in plants (more willows, cottonwoods, marshes, etc.?)  
Profoundly YES

HAMILTON DOME WATER DISCHARGES  
TO COTTONWOOD CREEK:

LANDOWNER ASSESSMENTS

GROUNDWATER HYDROLOGY ISSUES

1. Does the current flow of Cottonwood Creek affect the water table level on your property? If yes, do you see increased vegetation in areas of high groundwater table? (i.e. along stream banks) How much? (5 feet, 5 yards, 20 yards, etc.)  
*Doesn't run by my land.*
2. How many additional livestock can you operate with due to this increased vegetation from the raised groundwater table? (None, 5%, 10%, 20%, etc.)
3. Have you seen any affect of the water table in any water wells in the area? If yes, "What is the depth of the well(s)?" *I have two wells over 300' deep. Since the drought, they haven't been good water. Full of heavy minerals or metals, Sulphur & ~~Calcium~~ Sodium*

SURFACE WATER HYDROLOGY ISSUES

*States West will assess the current hydrology of Cottonwood Creek and predict the hydrology if the discharges were to cease.*

1. Do you have any knowledge of conditions of Cottonwood Creek before 1950? If Yes: How many years out of 10 would it normally be dry at some time during the year? What month would it normally go dry? In the spring, when would water start running in the stream above Hamilton Dome?  
*only been using since about 1974 or 75 - we start as soon as there's water in spring & thru fall, if there's water - this is second bad drought we have*
2. Do you irrigate with water solely from Hamilton Dome discharges?  
*Solely from what's in Cottonwood Creek -*
3. Do you irrigate with water that is mixed with runoff? If yes: How do you determine if the water quality is adequate for irrigation?
4. How many times a year do you irrigate?  
*From April thru Oct or Nov - as long as we can before freezes up.*
5. Have you seen any impact to your fields from irrigating with Cottonwood Creek water?  
*No.*
6. Have you ever seen any adverse health effects on livestock or wildlife from Cottonwood Creek?  
*No.*



ECONOMIC ISSUES

1. What is your typical season/period of use of water from Cottonwood Creek?

Begin: early Spring  
End: late fall

2. For what purpose(s) is the water used? (May indicate more than one answer)

Livestock watering (immediate use): Not Allowed  
Livestock watering (stored/impounded for later use): Not Allowed  
Irrigate Pastures: \_\_\_\_\_  
Irrigate Cropland: X

3. How long has your operation used this water?

Since about 74 or 75, when there was water

4. If you checked livestock watering in Question #2, what kind and how many head of livestock are supported by the water?

1 Cattle / 1 Sheep / 1 Horses N/A  
(cow-calf pairs)

5. Does the livestock watering occur on your own land, leased private land, or federal/state grazing allotments? N/A

6. If you checked irrigation in Question #2, please describe the type and use of the irrigated acreage.

Acres: 1311 Not Adjudicated For Rest of Property.  
Pasture / cropland

If cropland, the type of crop grown: Alfalfa Hay - Grain

Average productivity/acre over the past 3 seasons: Depends on water - 2001 - no crops at all - had no water at all -

If the crop is alfalfa or grass hay, is it used as winter feed for your herd or is it sold? Used For Livestock

7. How many people, including family members, work or are employed by your operation?

Year-round: 1 + wife  
Seasonal: 1

Please review the analysis of the effects of the loss of Hamilton Dome produced water on Cottonwood Creek (i.e., reduced average flow volumes by month). Then address questions 8-12:

8. How would a reduction/loss of the water affect your operation, (e.g., reduce herd size by \_\_\_\_\_, reduce crop production by \_\_\_\_\_%, or \_\_\_\_\_)?  
*I have No idea - MY Cattle drink well water - But I Need the Creek 100% for crop production.*
9. Estimate the reduction in your operations annual net income associated with the effects identified in Question #8 above? \_\_\_\_\_
10. Is there an alternative source of water available to replace this water? If yes, please describe, including the costs associated with obtaining water from the alternative source. None.
11. How would you adjust your operation's labor to deal with the effects associated with the reduction in water? MY PARTNER Would probably have To seek employment AWAY FROM Ranch IN winter Time -
12. Would your operation remain viable with the reduction in volume or the loss of this water? No.

#### ECOLOGICAL ISSUES

1. What changes have you noticed with regard to wildlife use of the area since the stream became perennial rather than intermittent? Before the Drought we have lots of Wildlife + Wild fowl -
2. Has the ability to produce alfalfa using discharge water increased use of the area by wildlife, especially big game and game birds? yes, when available
3. What would become of the irrigated hayfields if you could no longer irrigate?  
Have to lay fallow -
4. Has there been a change in plants (more willows, cottonwoods, marshes, etc.?)  
We don't have a tree on our 520 acres -

HAMILTON DOME WATER DISCHARGES  
TO COTTONWOOD CREEK:

**LANDOWNER ASSESSMENTS**

GROUNDWATER HYDROLOGY ISSUES

1. Does the current flow of Cottonwood Creek affect the water table level on your property? If yes, do you see increased vegetation in areas of high groundwater table? (i.e. along stream banks) How much? ( 5 feet, 5 yards, 20 yards, etc.) *Varies from 15-25 yds.*
2. How many additional livestock can you operate with due to this increased vegetation from the raised groundwater table? (None, 5%, 10%, 20%, etc.) *15%*
3. Have you seen any affect of the water table in any water wells in the area? If yes, "What is the depth of the well(s)?" *Well @ house is 95' and produces in excess of 40 gpm.*

SURFACE WATER HYDROLOGY ISSUES

*States West will assess the current hydrology of Cottonwood Creek and predict the hydrology if the discharges were to cease.*

1. Do you have any knowledge of conditions of Cottonwood Creek before 1950? If <sup>No</sup> Yes: How many years out of 10 would it normally be dry at some time during the year? What month would it normally go dry? In the spring, when would water start running in the stream above Hamilton Dome?
2. Do you irrigate with water solely from Hamilton Dome discharges? - *NO*
3. Do you irrigate with water that is mixed with runoff? If yes: How do you determine if the water quality is adequate for irrigation? - <sup>YES</sup> *When there is enough water you utilize it - have had no problems.*
4. How many times a year do you irrigate? *2-6 depending on water*
5. Have you seen any impact to your fields from irrigating with Cottonwood Creek water? *Without it they will die.*
6. Have you ever seen any adverse health effects on livestock or wildlife from Cottonwood Creek? *Absolutely none*

ECONOMIC ISSUES

1. What is your typical season/period of use of water from Cottonwood Creek? - *Non-drought yes.*

Begin: April 1-20 - - - - - Sept. 1-30  
End: May 20-June 30 - - - - - Oct. 1-30

2. For what purpose(s) is the water used? (May indicate more than one answer)

Livestock watering (immediate use): Year round  
Livestock watering (stored/impounded for later use): \_\_\_\_\_  
Irrigate Pastures: Spring & fall  
Irrigate Cropland: Spring & fall

3. How long has your operation used this water? - *We have owned and used this property for 5 years.*

4. If you checked livestock watering in Question #2, what kind and how many head of livestock are supported by the water?

20-40 / 0 / 2-4  
Cattle / Sheep / Horses  
(cow-calf pairs)

5. Does the livestock watering occur on your own land, leased private land, or federal/state grazing allotments? *Own land*

6. If you checked irrigation in Question #2, please describe the type and use of the irrigated acreage.

Acres: 25 / 30-35  
Pasture / cropland

If cropland, the type of crop grown: HAY

Average productivity/acre over the past 3 seasons: 1-1 1/2 T (drought years)

If the crop is alfalfa or grass hay, is it used as winter feed for your herd or is it sold? Winter feed

7. How many people, including family members, work or are employed by your operation?

Year-round: 2 [Wife & myself]  
Seasonal: 0

Please review the analysis of the effects of the loss of Hamilton Dome produced water on Cottonwood Creek (i.e., reduced average flow volumes by month). Then address questions 8-12:

8. How would a reduction/loss of the water affect your operation, (e.g., reduce herd size by 50-100%, reduce crop production by 50 %, or \_\_\_\_\_)?
9. Estimate the reduction in your operations annual net income associated with the effects identified in Question #8 above? \$13,500
10. Is there an alternative source of water available to replace this water? If yes, please describe, including the costs associated with obtaining water from the alternative source. No
11. How would you adjust your operation's labor to deal with the effects associated with the reduction in water? Economically unfeasible to operate
12. Would your operation remain viable with the reduction in volume or the loss of this water? No - cease operations.

#### ECOLOGICAL ISSUES

1. What changes have you noticed with regard to wildlife use of the area since the stream became perennial rather than intermittent? Much more wildlife using stream as a water source to the riparian areas.
2. Has the ability to produce alfalfa using discharge water increased use of the area by wildlife, especially big game and game birds? Absolutely - lots of deer, chukar and pheasants.
3. What would become of the irrigated hayfields if you could no longer irrigate? They would die.
4. Has there been a change in plants (more willows, cottonwoods, marshes, etc.)? Yes, without the water the cottonwood community and surrounding riparian areas would cease to exist.