Water Information Program's Annual 201 Seminar

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Nucla Community Center

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MAIN TOPICS OF DISCUSSION

- Basis of a Water Right
- Conservation vs Efficiency
- Use it or Lose it (Abandonment)
- Change of Water Right
- Wells and Augmentation

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BASIS OF A WATER RIGHT

A “water right” is the right to use a specific amount of water:

- according to its “priority date,”
- at a specific location,
- for identified beneficial use(s),
- all of which are described in the Water Court Decree.

– An Absolute Water Right must use the water according to the decree. For instance a water right decreed for 100 acres cannot be expanded to 120 acres.

– Water rights are granted by one of the seven Water Courts as a property right

– We are in Division 4 Water Court

COLORADO WATER RIGHTS PROCESS

- Colorado is the only prior appropriation State that uses a court process to obtain and change a water right.
- All other western States have the State Engineer issue water rights with appeals to a court.
- An application for a new or change of a water right is submitted to the Water Court.
- Potentially affected parties can file “statement of objection” to participate in the process.
- The fun begins when the applicant begins the negotiations to resolve the concerns of the objectors (if necessary).

Types of Water Rights

General	Unique	Other
Surface Water Right	Federal Reserve Water Right	Change of Water Rights
Storage Water Right	Recreational In-Channel Diversion	Exchange Decree
Underground Water Right	Minimum Instream Flow Water Right	Augmentation Plan

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EFFICIENCY VS CONSERVATION

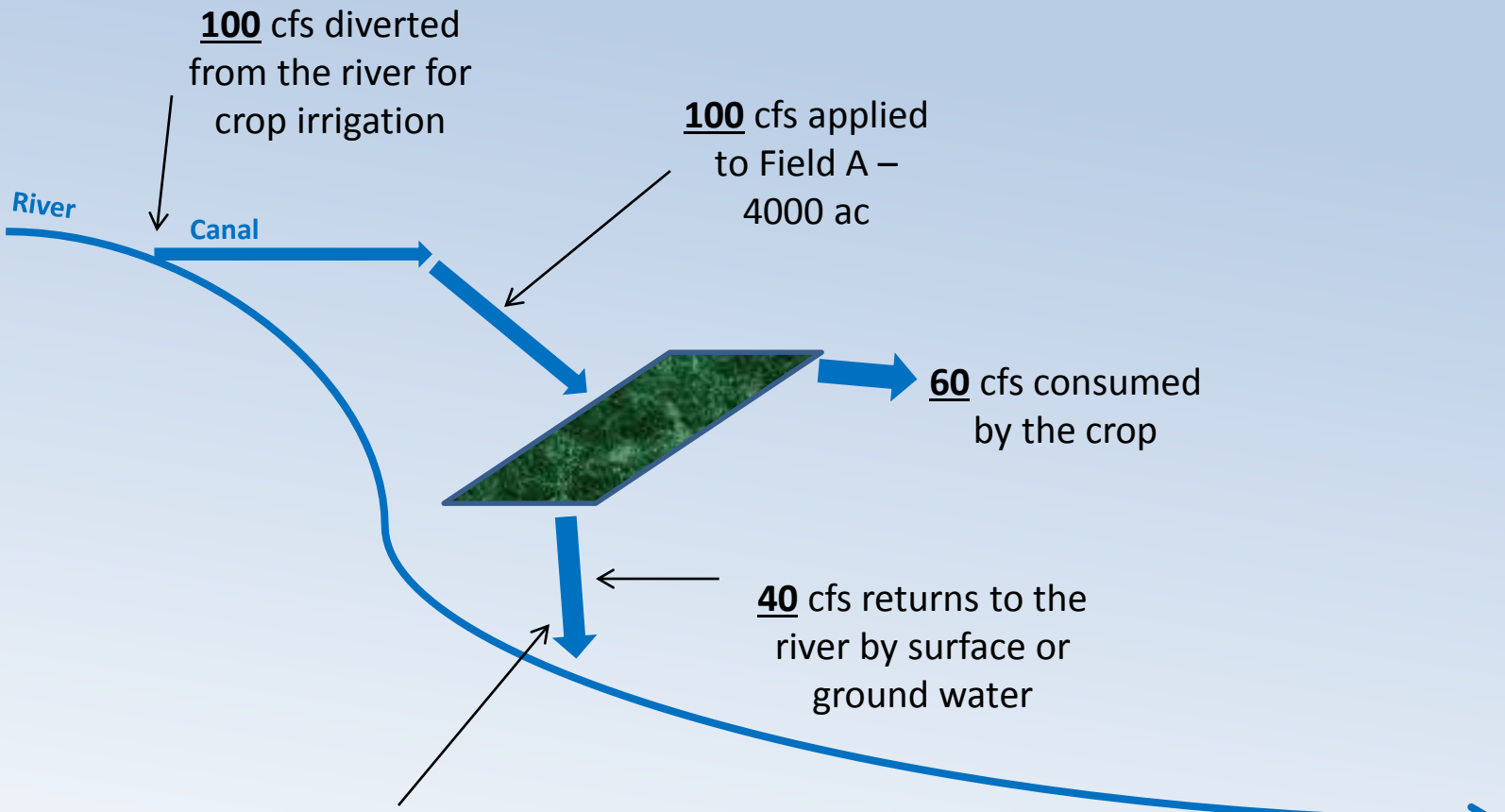
EFFICIENCY =

$$\frac{\text{Beneficially Consumed Water}}{\text{Diverted Water}}$$

CONSERVATION =

Reduction of Beneficially Consumed Water

Schematic of an Irrigation Diversion



This portion that was not consumed (that returns to the river through the ground water) does not return immediately. It may take months or years to get back to the river. 60% Efficiency

EFFICIENCY VS CONSERVATION

EFFICIENCY =

$$\frac{\text{Beneficially Consumed Water}}{\text{Diverted Water}}$$

CONSERVATION =

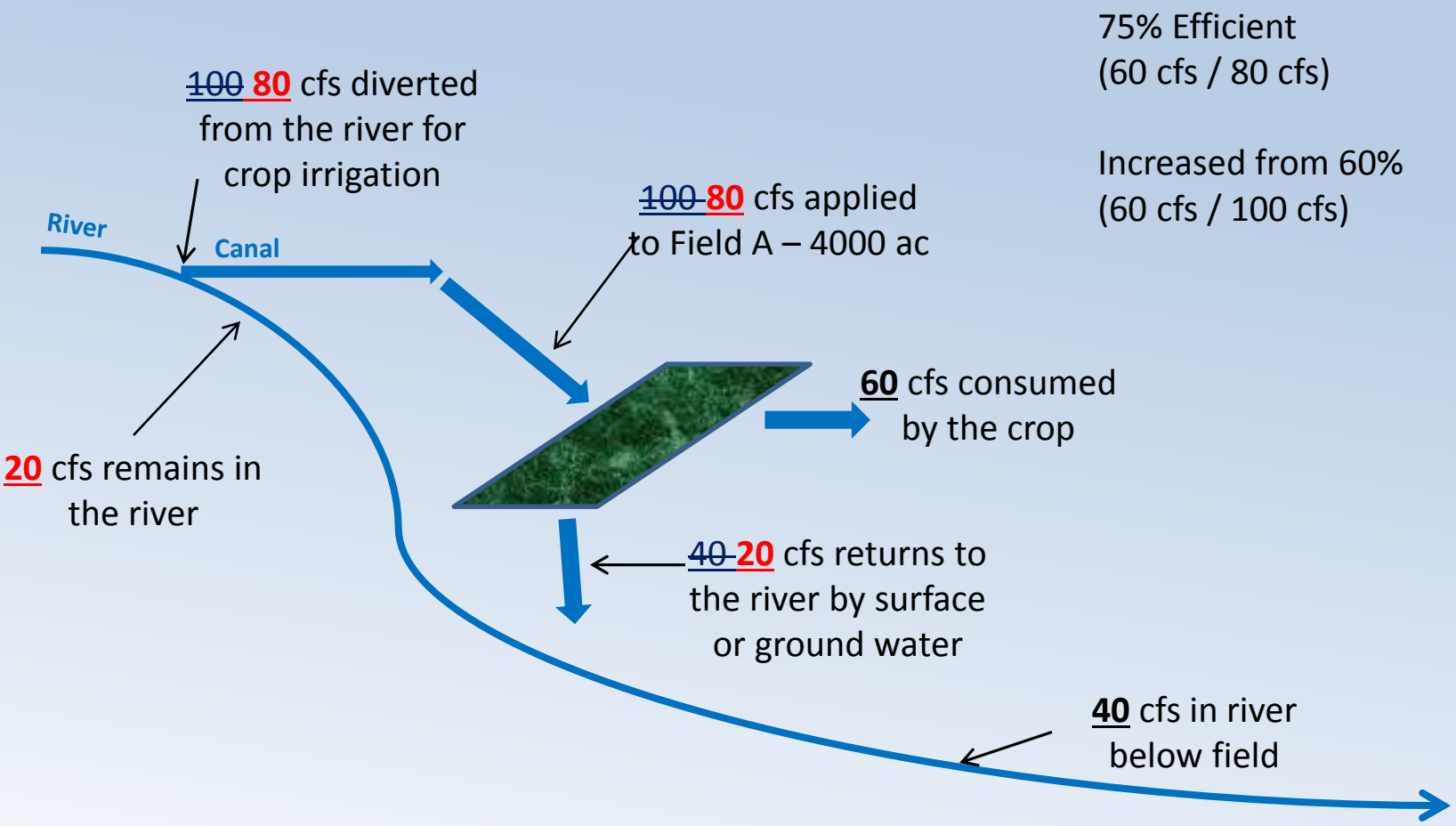
Reduction of Beneficially Consumed Water

In our example:

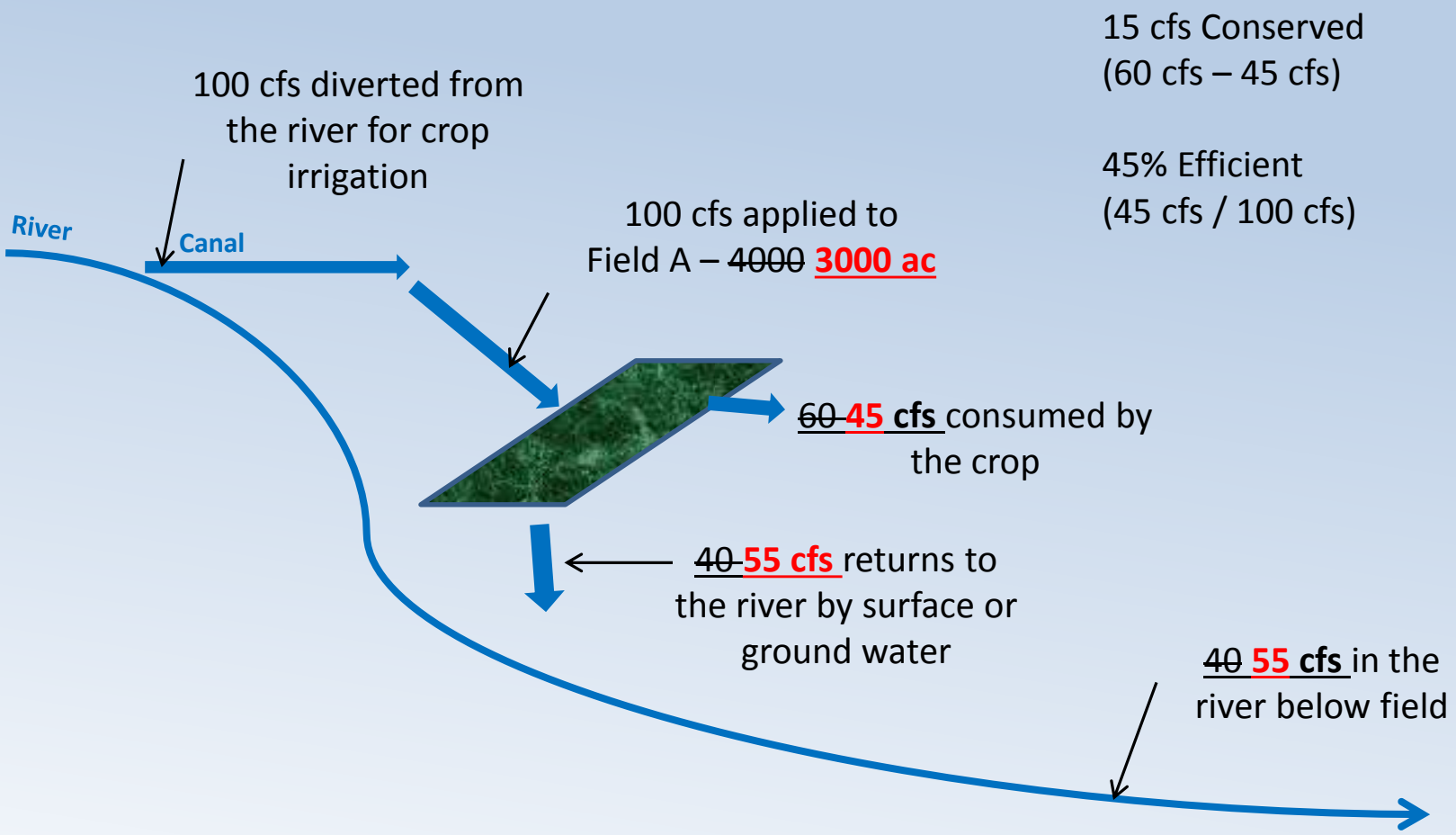
$$\frac{60 \text{ cfs}}{100 \text{ cfs}} = 60\%$$

An improvement in the efficiency is reducing the 100 cfs diversion but still have 60 cfs used by the crop and less returned to the stream.

Irrigation Efficiency - Sprinklers



irrigation Conservation – Dry UP



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In our example:

Conservation is reducing the irrigated acreage from 4000 acres to 3000 acres.

Water Conserved =

60 cfs – 45 cfs = 15 cfs

Municipal Efficiency Examples

Installing low flow fixtures

Repairing leaking fixtures

Taking shorter showers

Turning off water while brushing teeth

MORE ON Conservation

- Irrigation Conservation Methods:
  - Removing land from production year by year
  - Removing land from production permanently
  - Planting a crop that uses less water such as alfalfa to corn
  - Removing phreatophytes is not considered conservation
- Municipal Conservation Methods:
  - Lawn removal
  - Garden removal
  - Pool covers

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“Use it or lose it”

- Commonly misunderstood term because people believe preserving a water right is based on maximizing the diversion amount
- State Engineer and Division Engineer are focused on the continued use of water and not the abandonment
- The true measure of a water right is the historical consumptive use (HCU) for the decreed beneficial use(s)
  - If the water right is for irrigation, the HCU is the average amount of water that the crop consumes over a representative period

“Use It or Lose It” rolls off the tongue easily, so does:

“Establish and maintain a pattern of beneficially using it, for its decreed beneficial use, at its decreed place of use, over a representative period of time, while in priority, without waste, or lose it.”

Abandonment or “use it or lose it”

- Abandonment follows Colorado Revised Statute 37-92-402
- Intent of Abandonment Statute is not to punish people….
- Abandonment requires non-use for at least ten years but only if the water right owner shows an **intent** to permanently stop using the water for the decreed beneficial use(s)
- Every 10 years (next is 2020) the Division Engineer and State Engineer issue an abandonment list
- Division Engineers makes every attempt to notify the water right owner prior to being placed on the list
- To protest the listing the owner would first submit evidence showing non-abandonment to the Division Engineer
- If the Division Engineer doesn’t agree, the owner can protest to the Water Court

Can abandonment apply to part of a water right?

- Yes.
- For example if a water right is decreed for 200 acres but only 100 acres is being irrigated, the portion of the water right not needed for the 100 acres could be abandoned
- However, the reduction is not necessarily a direct proportion of acreage but a new estimate of what is needed to irrigate the remaining 100 acres

Can conditional water rights be abandoned?

- Yes.
- Conditional water rights have to show reasonable diligence every 6 years to maintain a decree for non-speculative beneficial use(s)
- If diligence is not sought or the Water Court finds there has not been reasonable diligence the water right is “cancelled”.

Can conservation actions be considered in abandonment?

- Yes
- However, there are special provisions for conservation but after an extended period of time can be considered abandoned.

Can a municipal water right be abandoned?

- With difficulty
- Municipal water providers have the responsibility to provide for future growth and are given special deference under the “Great and Growing Cities Doctrine”
- In theory water rights to serve municipal purposes can be abandoned but very unlikely

Is it best to divert the decreed amount to protect a water right?

- Yes but only if needed to achieve the current beneficial use(s)
- Diverting more than is needed to meet the current beneficial use does not add value to or protect the water right

Will an increase in efficiency affect abandonment?

- Not usually
- However the owner should keep records of efficiency actions to show no intent to abandon

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Change of a water right

- WATER RIGHTS ARE CHANGED ALL OF THE TIME
  - A water right may be changed for something other than its identified beneficial use, moved to another point of diversion, or a new location of use
  - The applicant in a change of water right must show the new use does not increase the HCU and does not injure any other water right, whether senior or junior
  - Typically the changed CU for the new use is less than the HCU

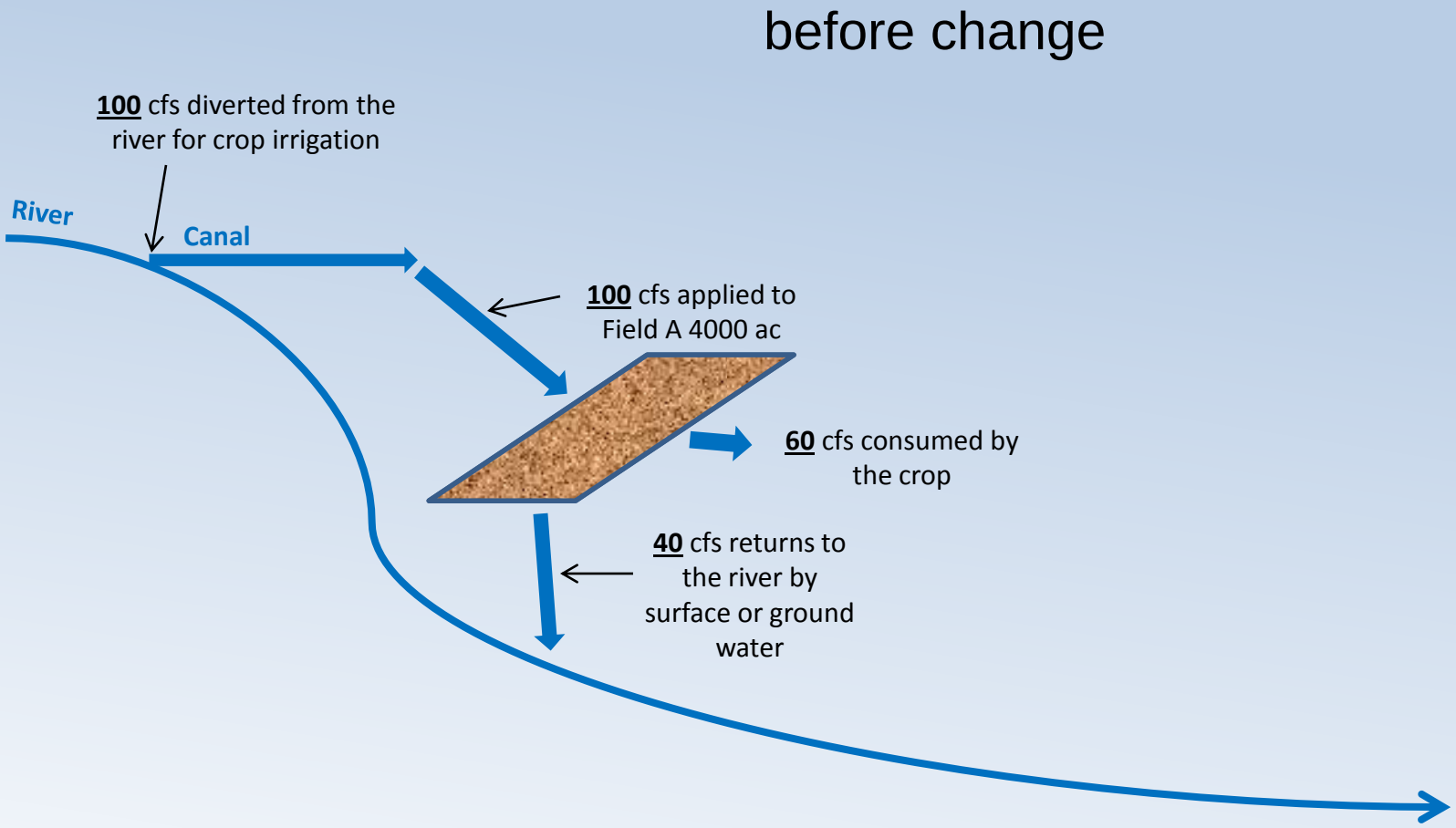
Process for A CHANGE

- Application to Water Court describing:
  - How much water was historically diverted from the river?
  - What time of year was it diverted?
  - What was the historic consumptive use (HCU)?
  - How much of it returned to the river? When?
- The challenge: To ensure that none of these components change; if they did, it could cause material injury to other water users.
- The opposers then question the evaluations in the application and/or make their own evaluations.
- Negotiations are held until all parties agree or don't agree and a trial is held

Example change

- We are the owners of this 4000 acre farm. We would like to lease or sell our water right to a city to be used for municipal uses instead of agriculture.
- We are going to “dry up” our land.
- Who are the other players? Who has an interest?
  - Other Water Rights upstream and downstream
  - CWCB if an instream flow is involved
  - Division of Water Resources
  - Other interests

Change of use example



Change of use example

- The measure of a water right is its HCU.
- We can transfer **60** cfs if the entire 60 cfs was used on 4000 acres for the entire study period
- The study period is determined by the applicant to represent wet, dry and average years
- We need to leave behind the 40 cfs that has always returned to the river in the same timing.
- If the entire 4,000 acres was not irrigated over the study period the 60 cfs is reduced and the amount to the river is increased to reflect the average HCU of the actual irrigated acreage over the study period

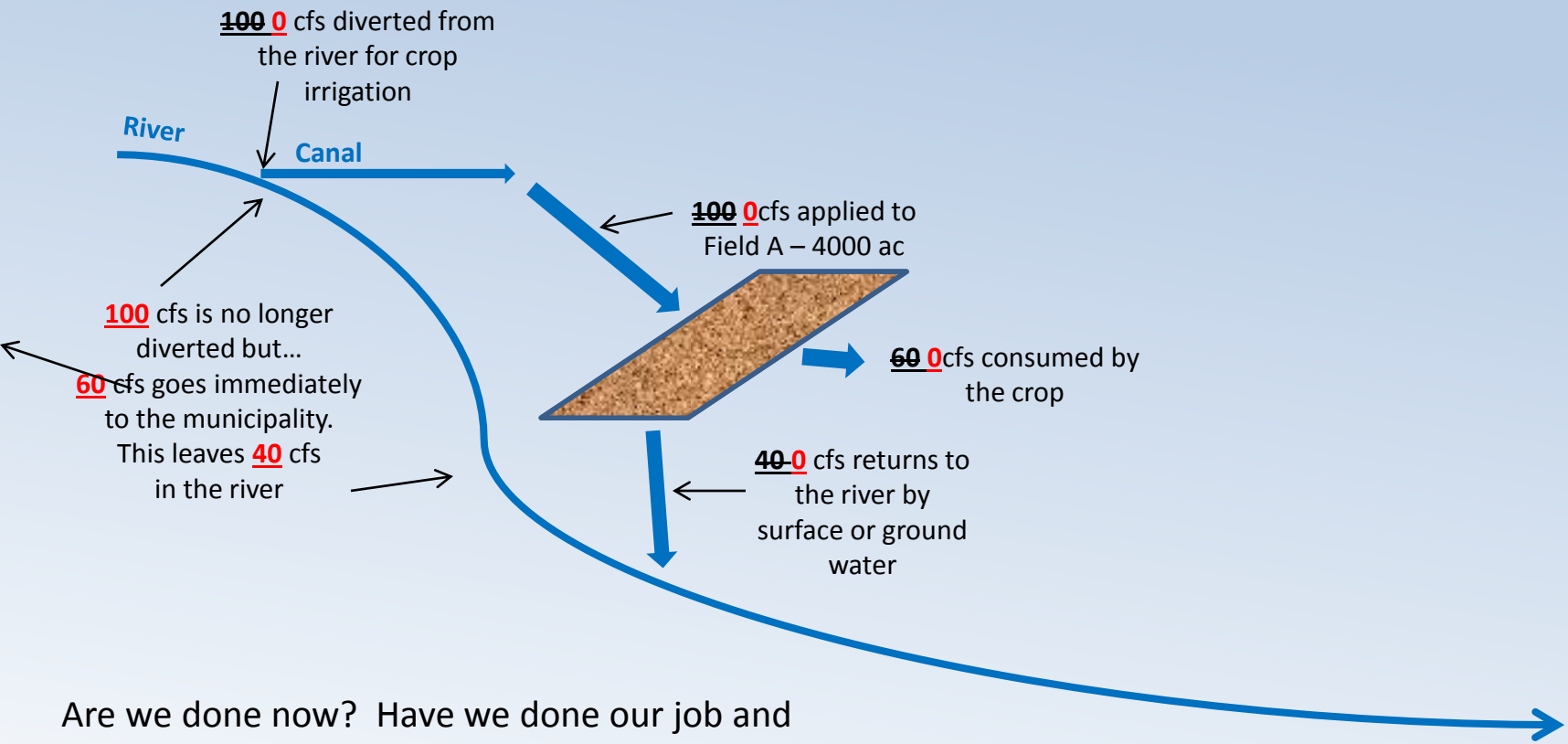
estimate Crop cu

- Crop consumptive use is primarily estimated using the Blaney-Criddle Method that uses monthly temperature and precipitation. Monthly estimate.
- Blaney-Criddle uses crop coefficients that change for each crop, elevation, and area.
- Other methods, such as Penman-Monteith, are used if additional climate data is available (wind, humidity).
- The purpose is to estimate the amount of water the crop needs for full production each month.

estimate historic cu

- The diversion records for the specific ditch are then used to determine if the crop received enough water for full production.
- The diversion records are often daily but crop CU monthly so mismatch information.
- If insufficient diversions the crop production and associated consumptive use is reduced.
- For instance if the **60** cfs needed by the crop is not available all of the time the HCU is reduced.

After change



Are we done now? Have we done our job and protected all water rights?

No we haven't. We haven't taken into account the *time aspect* of the historical returns to the river.

Timing of return flows

- The timing of the 40 cfs return flow to the river also has to be duplicated
- The portion of the 40 cfs that is subsurface must be estimated and the timing of that return flow estimated.
- A model called the “Glover Method” is used to estimate the speed of groundwater flow.
  - The type of soil is estimated using well records and other geologic information
  - The Glover results are used to determine how the applicant must duplicate the historic return flow

What the Applicant feels like

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Types of Well Permits

- **Exempt Well ($100)**
  Valid for 2 years
  Submission of Well Completion and Yield Estimate Report validates permit

- **Non-Exempt Well (Commercial) ($100)**
  Valid for one year
  Submission of Well Construction and Yield Estimate Report and Pump Installation and Production Equipment Test Report validates permit

Domestic/Household Use Only

Non-Critical Domestic

- Ensure location is not Water Critical
- Metes and Bounds description not required
- Maximum of 3 homes and 1 acre lawn/garden irrigation

Household Use Only

- Issued in Water Critical areas (Check Critical Stream List)
- Limited to in house use only!
  - Allows for use in a sink/bathroom in a detached garage or outbuilding used by owner (not a business or apartment)
- Sewage system must be non-evaporative
- Need proof of …
  - Subdivision created prior to May 8, 1972 (Senate Bill 35)
  - Lot creation prior to May 8, 1972 (Senate Bill 35)
  - County Exemption (letter from County or Commissioner Meeting minutes)
  - Lot creation by Court Order

Late Registration

- Well Constructed prior to May 8, 1972
- Approved for uses prior to May 8, 1972
- Field Inspection required

Domestic/Household Use Only (con't)

Critical Domestic (35+ acre wells)

Proof of ownership of 35 or more acres

Survey or metes and bounds description stamped by surveyor

Check 35 acre maps

Survey/Metes and bounds description not required for large tracts of land or square 40 acres parcels

Approved for 3 homes, 1 acres lawn/garden irrigation and domestic animals

Waste disposal must be non-evaporative

Non-Exempt Well Permits

- **Domestic (Augmented)**
  - Issued in Critical Areas
- **Commercial**
  - Amount requested needs to be specific and explained
  - Not Issued in Critical Area unless Augmented
- **Pond Wells**

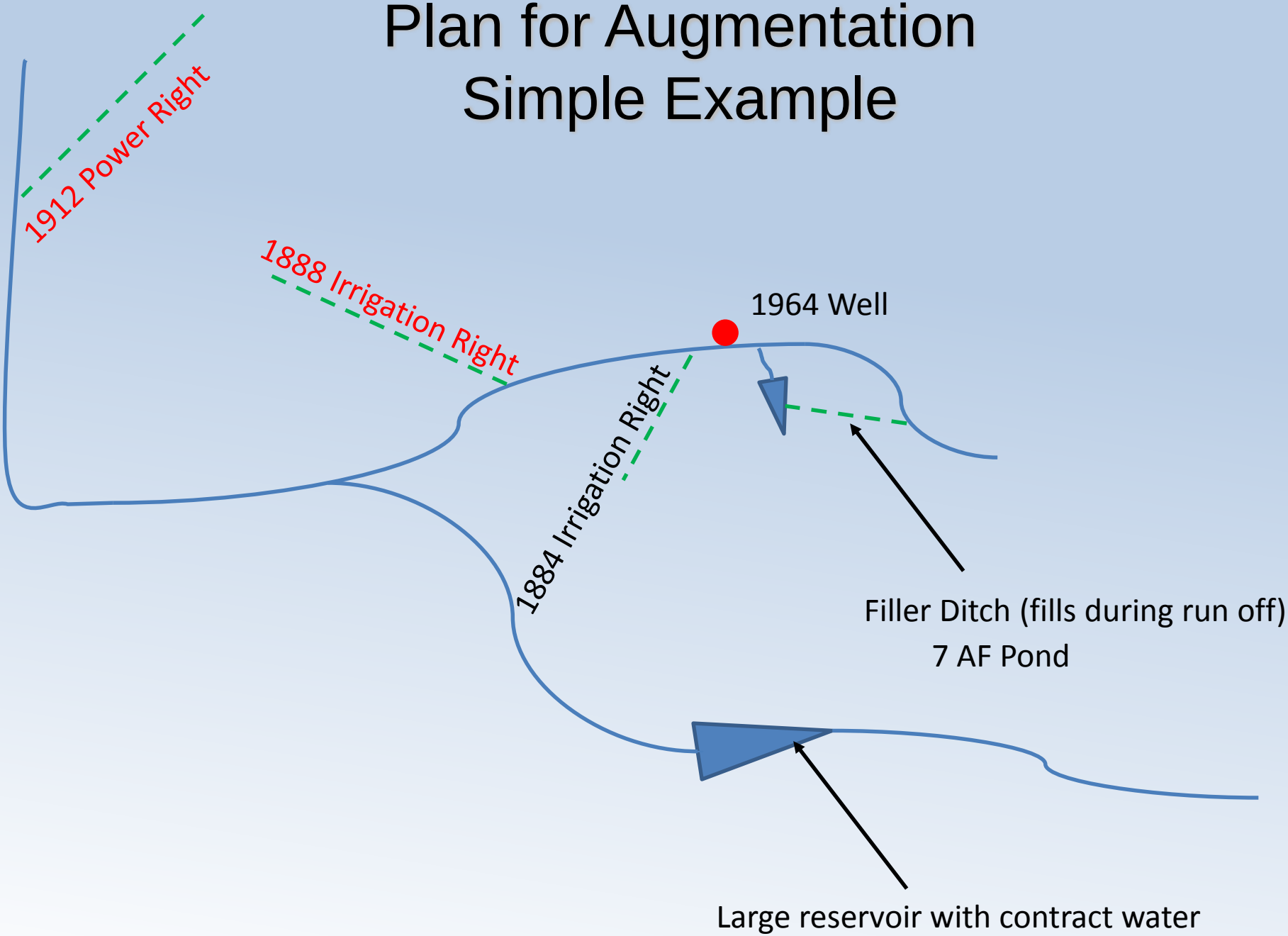
Differences Between a Well Permit and a Decree

- Well Permit
  - Permit to construct and use limitations
  - Issued by DWR
  - Does not convey a water right
  - Does not guarantee quantity or quality of water
- Decree
  - Adjudication of water right in priority
  - Issued by Water Court
  - Absolute or conditional
  - Does not guarantee quantity or quality of water

Sources of Replacement Water

- Fully Consumable Water
- Reservoir Releases
  - Contract or Lease Water
  - New Storage
- Change of Irrigation Rights (HCU credits)
- Recharge Credits

Plan for Augmentation
Simple Example



Augmentation Table

Homes	Number	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Homes	100	3.330	3.008	3.330	3.222	3.330	3.222	3.330	3.330	3.222	3.330	3.222	3.330	39.205
Commercial	1	0.048	0.043	0.048	0.046	0.048	0.046	0.048	0.048	0.046	0.048	0.046	0.048	0.560
Lawn (acres)	11	0.000	0.000	0.000	1.294	3.882	6.082	6.471	4.918	2.976	1.682	0.000	0.000	27.306
Stock - Irrigation Season	50	0.000	0.000	0.000	0.000	0.026	0.051	0.052	0.052	0.051	0.026	0.000	0.000	0.258
Stock - Nonirrigation Season	200	0.209	0.189	0.209	0.203	0.105	0.000	0.000	0.000	0.000	0.105	0.203	0.209	1.431
Total Demand		3.587	3.240	3.587	4.765	7.390	9.401	9.900	8.347	6.295	5.190	3.471	3.587	68.760
Depletions														
Homes on IDSS	82	0.273	0.247	0.273	0.264	0.273	2.642	2.730	2.730	2.642	2.730	0.264	0.273	15.343
Homes on WWTP	18	0.030	0.027	0.030	0.029	0.030	0.580	0.599	0.599	0.580	0.599	0.029	0.030	3.163
Commercial	1	0.002	0.0021	0.0024	0.0023	0.0024	0.046	0.048	0.048	0.046	0.048	0.002	0.0023784	0.251
Lawn (acres)	11	0.000	0.000	0.000	1.100	3.300	6.082	6.471	4.918	2.976	1.682	0.000	0.000	26.529
Stock - total		0.209	0.189	0.209	0.203	0.131	0.051	0.052	0.052	0.051	0.131	0.203	0.000	1.480
Total Depletions		0.515	0.465	0.515	1.598	3.736	9.401	9.900	8.347	6.295	5.190	0.498	0.305	46.766
Exchange														
Senior Ditch Water														
0.25 cfs Exchanged		0.000	0.000	0.000	0.000	15.500	15.000	15.500	15.500	15.000	15.500	0.000	0.000	92.000
Balance: Credits minus Depletions		-0.515	-0.465	-0.515	-1.598	11.764	5.599	5.600	7.153	8.705	10.310	-0.498	-0.305	-3.896
Aug Requirement Nov-Apr		**0.515**	**0.465**	**0.515**	**1.598**							**0.498**	**0.305**	**3.896**
Transit loss from Crystal Dam		**0.024**	**0.021**	**0.024**	**0.073**							**0.023**	**0.014**	
Total Augmentation Requirement		**0.538**	**0.486**	**0.538**	**1.671**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.521**	**0.319**	**4.074**
		Contract Water			**Pond**	**Irrigation HCU Credits**						**Pond**	**Contract**	

Considerations Reviewing an Application for a Change of Water Right

- Non-injury rule
- Historic Diversions
- Historic Consumptive Use
- Historic Return Flows
- Other Terms and Conditions To Prevent Injury

Considerations Reviewing an Application for a Plan for Augmentation

- Review Change of Use for Augmentation Source
- Determine Depletions
- Determine Adequacy of Replacement Water
- Other Terms and Conditions Necessary to Prevent Injury

"Mr. Osborne, may I be excused?
My brain is full."