

*Ann's Notes*

**STATE OF NEBRASKA**  
**DEPARTMENT OF NATURAL RESOURCES**  
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29-01-00

6/15/07

~~Ann Bleed~~

~~NDUR~~

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are forming a formal coalition

Lee O Emp for ID to have a voice that counts for something.  
Asking AD's must stop.

Saw terrible misunderstanding of ADs during 70L

I mentioned AG -

ID's are political subdivisions of  
Rely on Reclamation + land as resource

Steve H Not like minded in goal of sustainability

Plans put forward  
maximize allocation + comply c compact  
what is missing is how to put more  
water in reservoir each year.

SH Until get economic incentive - people will  
use full allocation  
give a 3" allocation  
5" c 3/10 fee  
rest water on open mkt.

surface water moratorium on 1993.

SH - we don't have benefit of efficient pricing of public  
see users have been allowing water -

HARLAN TO G.R. = 21,301  
G.R. TO HARDY = 3,463 Acres

Well Count in Stream Cells

LR: 1156

MR: 894

UR: 223

Harlan - GR: 362

GR - Hardy: 82

GWEX Acres

GWCO

LR	: 65,887	49%	6400.
MR	: 40,440	30%	774.
UR	: 27,710	20%	682.
Har - GR	: 21,301		
GR - Hardy	: 3,463		
	<u>134,037</u>		

\$/300-400-

Sam Coulson  
Mike Clements

3/27/07

Mike Clements

worst case scenario - if no SW buyout  
Based on making up average of previous past  
Risky scenario

7.4" what benefit are you

7.6 producing savings.

7.1" 38,022 AF pumping.

Do county specific depths in model

I agree savings must be credited in  
same way.

will make things = & account for saving  
in past.

LRPRD - will be responsible for 26%

MC Under new method - is fair.

Chuck Spalding  
Jim Williams  
Jim Schweich  
Paul K  
6/25/07

Chuck - optimization - has trouble with non-linearities  
- also has problem when dry cells go off on  
Aufkelt - USGS - GWM module

Mo p.m. Review RR model issues.

Tuam augment  
Mound

Wed am Model review - scope of work.

Precip scenario has huge impact

Pumping kept at  
allocations levels?

Precip moderate drought  
X less impacts.

Wet upstream so impacts in lower are larger  
55% of CWS

Allou 234 -

Dry 200

By URD pumping impact -

According to Chuck - other states didn't have much  
impact.

Look at differentiates all state on us all state off  
to see if state on a state off.

To what extent does pumping in upper course impacts  
in middle & lower to be different.

	LR	M	URD	
% of Precip	37%	38%	27%	98-02
(Contributing most.)	32	39	27%	

look at lag effect by NK D.

UR - 110 lag

F

$V_c$  180,000

TB <sub>$V_c$</sub>   
Other:

8000
3500

most of other is outside SW basin -

If have constant head at Platte - most of wells in TB will take water from Platte

We should eliminate wells outside the basin  
see how much  $V_c$  changes.  
TC is causing 628,000 AF depletion

1 May 25, 2007

Jim, Jim, Brad

Average scenario run

$\bar{x}$  mean fall record of compact -  
for every year - no variables

Pumping = what was allocated.

ET = 88-91 - smoothed out

7 precip  
15% below  
 $\bar{x}$

Impacts of average less than drought -

Old moderate drought about 33%  $\bar{x}$   
but in URWRD was about  $\bar{x}$  %

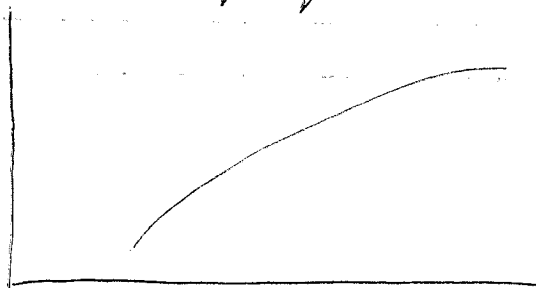
new drought uses 35% for each gage  
Impacts less

- no lag effect under drought conditions  
we expect streams are disconnected from aquifer

Increase  
10%  
1000 AF

Methodology for allocation (new spreadsheet)

Total  
Surface  
Flows



highly significant relationship

Can use to stay if stream flow is  
 $x - cws = y$ .

+ Computer Watership  
- # 5000 AF / yr - trend

50 year period

Use  $\bar{x}$  + 35%

Streamflow = 50% (not  $\bar{x}$ )

$\bar{x} \approx 50\%$

Princip.

yr 2 balances yr 38.  
use half same period.

Median - (Slope x .5 time period)

- allows gains forward

subtract reduction in bas flow each year

$\bar{x}$  flow 116,951  
 78,524

& will continue to decrease going forward

then use the

CWS	Average	Brought	CWS
2017	425,000	363,000	
2020	412,000	350,000	
2040	378,000	316,000	

Use 55% to compute allocation

2017	234,000	200,000
2020	227,000	192,000
2040	208,000	174,000

Assumed FWS = 10,000 unit change.  
25,000 cws evap.

allowable use 234 + 10 - 25 = ~~229~~  
219.

98-03 - evap 27.5% SW CBCU = 60 KAF  
72.5% GW

2017 @B@ 60 KAF  
 GW 159  
 Drought 50  
 134

Vc  $\bar{x}$  2012 174000?  
 TC 182 ?  
 165,000 = Vc drought

16,000  
 " drought, 32,000



Dict reduction on inch by inch basis

May

32,000

9.5 reduction basin depth  $\approx 3''$  width

no SW buyout

16,000, 5.5" <sup>reducing</sup> average basin-wi

7" inches basin wide

Not past 2012.

average conditions

- dependent inputs  
turn one off - others on.

only one on = independent.

Dependent

33% 28% 44%

This is TC

$\therefore$  assuming mostly TC  
is <sup>yearly</sup> FWS.

Compliance by 2012 - not negotiable

RR Tech  
4/19/07

Last meetings (

Current climate trend

with SW buyout continuing - cap CU at 20,000

8"	yr 1-3	} .5" every 3 years.
7.5	4-6	
7	7-10	
6.5	11-14	
6	15-18	

If Higher precip - reductions reduced by 2.2"

We agreed to avoid mistake being over optimistic  
5 year allocation  
Review & adjust every 5 years

Agreed 26, 30 & 44 % among NRDs  
& review % in 5 years  
Agreed provide allocation to SW  
agreed parity between SW & GW  
On average 11/secr is same in same creek

Strongly - SW - set allocations SE  
would expect SW of some amount in SW buy next SW  
years,  
SW limited to same as GW

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Amundative Dept from Average

"mod" drought  $\cong$  21"  
"average"  $\cong$  23.5"  
x 22

last 5 yr 20.5"  
UN off = 20,000

0% reduction pumping 11.5"

Use long term  $\bar{x}$  20"

what we do drought —  
what we do wet —

sliding scale to alloc — Jasper.  
sw runoff

Josh — Dec 15<sup>th</sup> worst case

3/30/07

## Republican River planning.

- Dan Smith upset over language on DNR setting allocation

## Botswick buyout

Intent of Botswick - Keep extra water in Lake

NRPs - concerned about them using extra water this year. to

Steve R - CG water purchase - great success benefited by \$ on water -

- works only if water goes to KBLD
- Bureau not involved in how much district gets paid or how developed distributed
- FV - Bureau no interest in n.f. (when bureau determines inches/ac includes n.f.)
- FCID - must mimic irrigation releases
- these are Federal projects with multi purpose
- with total - buyout get close to KBLD RIL

## Supply

FCID - status - everyone still on board.

Shaw poll - 4.1 in favor - board meeting

April 4. Proposal - full buyout or 1/2 buyout

LRNRD special Bd mtg Tues to make full

Board decision

MRNRD - doing Monday

TD - wants gage on Spring Creek

## Augmentation

### Initi

Constructions cost 9 different sites

to pump 3300 AF @ 2000 gpm all year

\$2.5 m. Per site = \$500/AF initial + pump

< \$100/AF - question of for compliance

must refine for cost next step sw model

DNR - ~~add~~ will run model runs  
next meet 4/4. plan to spray July + Aug

will have to fence off river from livestock

Dave Congress Smith at request COE to authorize cleaning  
Cookson up river, Kansas City + COE really want to work with State  
on

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make estimate of allowable depletion  
give % to SW users  
Josh - give SW users % allowable  
depletion -

Jasper have some sort of sliding scale  
Baseflow + runoff -  
to extent reduced runoff -  
must have SW offset depletion  
larger.

★ SW get more water when supplies more  
Delta -

need to remember running %.

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NRD buyout

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Basic idea O.K.

Mike D	Mike D	Bob Meisinger
Rich	Jasper	Paul Koest
Brad	Josh	Jim S
Sim W	Dan S	

5-10 years out SW goes to 0  
 Rain annual lease SW above evap - 20,000

0 percent reduction 700,000 AF 11.5" for whole  
 (88-91 prep)  
 (2005)

8 prep stations  
~~1950~~ - 2000.  
 1950

1689,505 total certified acres  
 6" allocation keeps us in compliance  
 & gets us into compliance  
 Buying 29,000 AF & # goes down over time

460,000 in UR not allocated by 70 get  
 unregulated (ie 448,000 unregulated certified but  
 will have adds on)

Start 8" & ratchet down 1/3" every 3 years  
 but have to go to 3" in long term  
 to stay maintain

Mod drought	Normal	Runoff still at 20 in
6W crop 209,000	242,000	last years
<u>4075</u>		
alloc 170,000	<u>221,</u>	
-39,000	21,000	

Normal condition under normal runoff  $\Rightarrow$  7"  
 100,000 AF runoff = 9.8" which is what we see today  
 2005-2006 = 10.5"

SW buyout  $\Rightarrow$  3" more than without  
 & have ~~the~~ more runoff -

SW buy out  
 allow 30,000  
 new acres

Conservative  
More normal climate  
50,000 Run off

7"

assume  
evap 25000

no SW by out

0 SW

10.9"

Jasper - must lay out as it is + not make  
same mistake RP did.

1944-45

5 year allocation get SW on retention  
and language in can be changed

Water shed year plan 119  
Men " " " " 119-130  
7130  
Josh Plan.

Manage GW so SW large enough to deal with  
dry periods

% numbers			
Not sensitive	26%	36	= 26%
to on+off	29%	31%	30%
	45%	43%	44%

from year vary  
 Stay at % on 5 year running average

98-2000 UR - used estimate.

Keep these % - and after few years we  
 can compare meter data + pump estimates  
 + readjust for next allocation.

based on depletion to stream -

Agree provide water supply to surface water

Jasper wants pump between SW + GW

Make P - take SW off top & let SW figure out  
 how much.

Modeling normal conditions (runoff = problem)  
 c = 3 by out (+ 2")

Meet 3:00 in Hddw 19<sup>th</sup>



contains 3¢ -  
+ additional 3¢

accretions

115,000 swam acres

Delta - 98-2000 - already reduced

17 m acres - total acres  
115,000 ex sw

historic projects  $\approx$  50% historic supply

GW pumpage = fracturing GW pumping

Comp call  $\approx$  Wyoming

# Cost per acre upland wells

550/ac  $\rightarrow$  27 million in MRWRD / year  
40% ~~8150/ac~~

2/22/07

Dave C - TWS

where do we count TWS

multiple answer

GW TWS credit mound - accounting water short  
above years

Hc - GR in irr -

IF pump gw out of mound - several ways

⇒ SW Compact accounting - is at gages

IF no other agreement @ KS -

gets counted at Grand St or Hardy

However - we could ask KS to account  
as gw. IF KS agrees to account agree

OR

whichever we get to gage we get 49%

Didn't write in stip for SW transfer but  
is ambiguous enough to press KS in  
water short years.

Don't do interbasin transfer in non  
water short years.

IMP

46-714

IMP - geog

Goals + obj

doesn't specify how detailed  
controls have to

First set IMP - ID controls.

Nothing says can't ID more

specifically - up to DNR + IMP

agrees.

If adopt general

can't change rules + regs that don't  
impact.

If substitute control - ie monitoring -  
will have to redo.

If change rule + reg