

Nebraska Department of Natural Resources Preliminary Republican River Basin Forecast (2011)

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Presented to the

**Nebraska Republican River
Management Districts Association
(NRRMDA)**



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Review of Forecast Methods

- ❑ Develop preliminary 2010 accounting
- ❑ Develop dry-year forecast (i.e., streamflow, swcbcu, gwcbcu estimates)
- ❑ Develop 2-year and 5-year balances
- ❑ Evaluate balances within the Compact Call Year
Evaluation flow chart

Preliminary 2010 Accounting

Year	Item	Information Source
Provisional Data for T = 0 (Current Year or Immediate Past Irrigation Season)	Pumping	Power records estimate
	Surface Water Use	Estimated from preliminary data and previous years values
	Stream flow	Available provisional records end of year estimated
	Evaporation	T – 1 records

Estimated 2010 Basin-Wide Balance in excess of 100,000 kAF

Dry-Year Forecast for 2011

Year	Item	Information Source
Forecast Year T + 1 (Coming Irrigation Season)	Ground water Consumptive Use and Imported Water Supply Credit	Average values for T = 0 and T - 1
	Surface Water Consumptive Use	Colorado: Average of T - 1 and T - 2 use Kansas: + (.1858 x HCL content) + 9,575 Nebraska: - (4x10 ⁻⁷) x (NE lake volume) ² + (0.52) x (NE lake volume) - 42,000
	Stream flow	+ (5-year average of state line flows) x 0.41 + 0.23 x HCL content - 27,450

Previous Years Balances

Year	Information Source
T = - 3 (2007)	Draft; current Accounting Procedures (v. 2005)
T = - 2 (2008)	Draft; current Accounting Procedures (v. 2005)
T = - 1 (2009)	Draft; current Accounting Procedures (v. 2005)
T = 0 (2010)	2010 Preliminary Accounting
T = + 1 (2011)	2011 Dry-Year Forecast

Average Based on Annual Balances

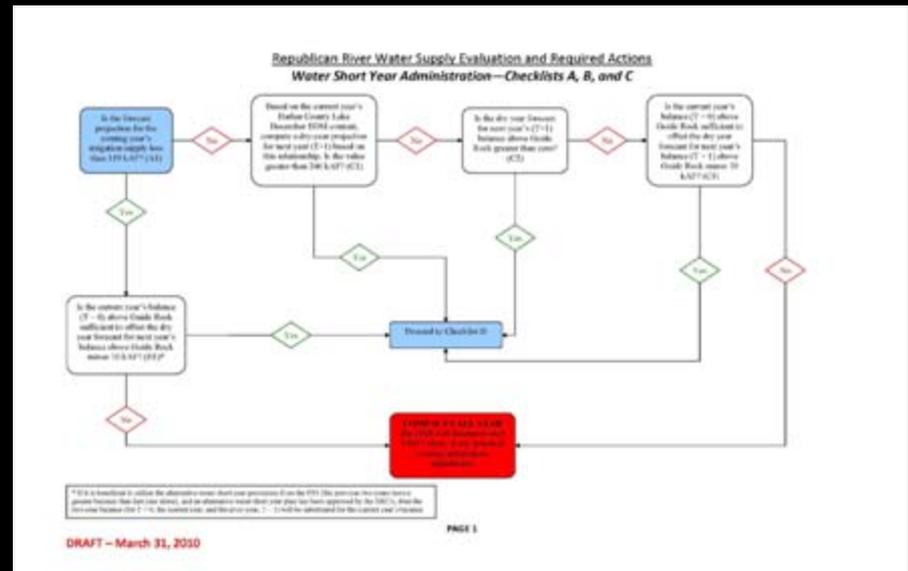
Year	Hardy	Guide Rock
T = - 3 (2007)	30,843	
T = - 2 (2008)	84,998	
T = - 1 (2009)	10,266	
T = 0 (2010)	107,979 (preliminary)	111,265 (preliminary)
T = + 1 (2011)	-10,012 (forecast)	-17,950 (forecast)
Average	44,815	46,658

Compact Call Year Evaluation (Checklist A.)

Is the forecast projection
for the coming year's
irrigation supply less than
119 kAF?

NO

Proceed to Checklist C.

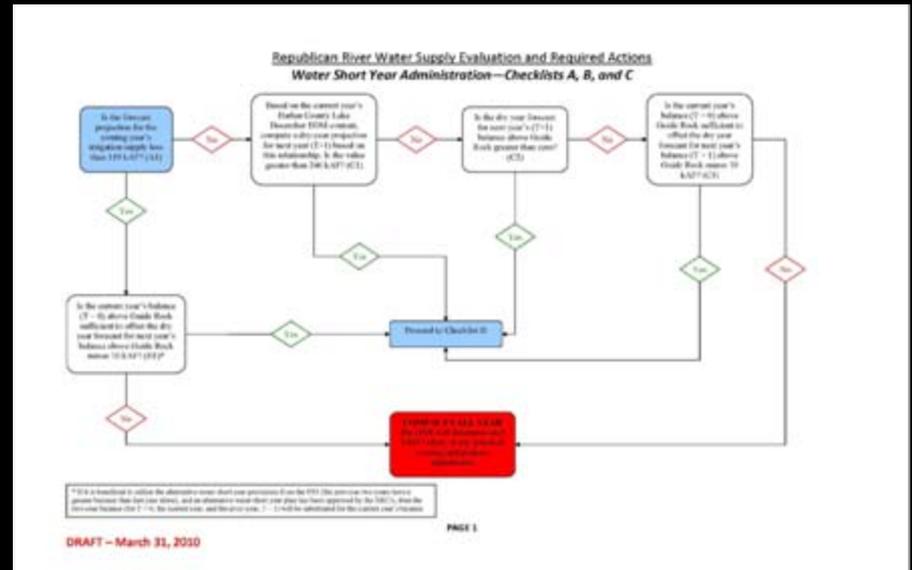


Compact Call Year Evaluation (Checklist D.)

Will the forecast result in a
5-year average at Hardy
that is greater than 10
kAF?

YES

**Compact Call Year is
not in effect**



NRD Compliance Standards

- ❑ Evaluate 5-year and 2-year (when WSYA) averages to ensure Compact Compliance
- ❑ LRNRD (26%), MRNRD (30%), URNRD (44%)

NRD Annual Balances

(2001 – 2009)

Year	Allowable Groundwater Depletion			Groundwater CBCU			Annual Balance		
	LRNRD	MRNRD	URNRD	LRNRD	MRNRD	URNRD	LRNRD	MRNRD	URNRD
2001	58,168	67,116	98,438	48,056	68,909	81,447	10,112	-1,793	16,990
2002	39,750	45,865	67,269	45,738	49,061	73,442	-5,988	-3,196	-6,173
2003	42,502	49,041	71,927	52,534	54,510	81,842	-10,032	-5,470	-9,915
2004	41,630	48,035	70,451	55,442	62,446	78,856	-13,812	-14,412	-8,405
2005	39,433	45,500	66,733	56,467	60,431	77,087	-17,033	-14,932	-10,354
2006	39,275	45,317	66,465	52,505	54,158	73,493	-13,230	-8,841	-7,029
2007	59,095	68,187	100,007	53,172	62,874	80,527	5,923	5,312	19,480
2008	71,737	82,773	121,400	51,828	56,148	82,834	19,908	26,625	38,566
2009	57,183	65,981	96,772	54,457	66,906	88,336	2,727	-925	8,436

NRD Rolling Averages

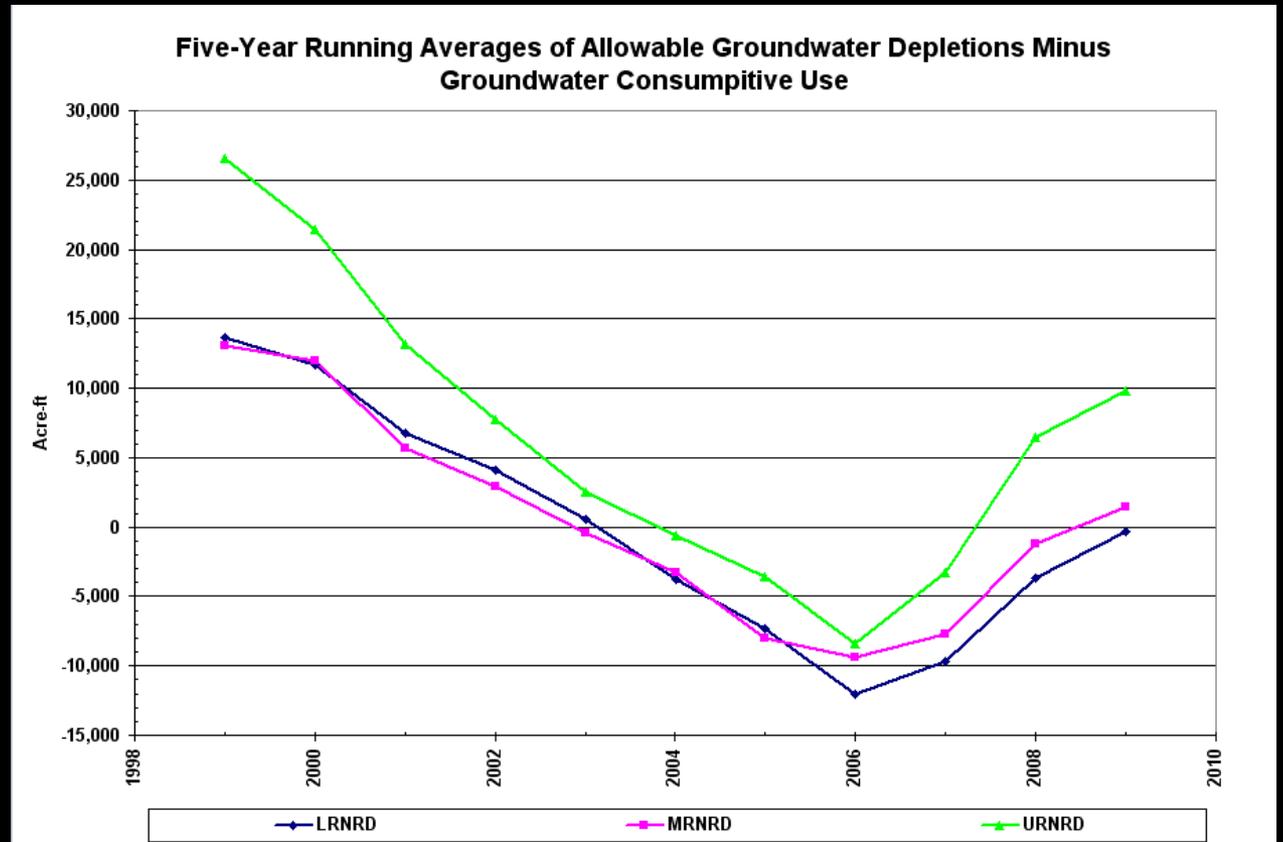
Year	5-Year			2-Year		
	LRNRD	MRNRD	URNRD	LRNRD	MRNRD	URNRD
2005	-7,351	-7,960	-3,571	-15,423	-14,672	-9,380
2006	-12,019	-9,370	-8,375	-15,132	-11,886	-8,691
2007	-9,637	-7,668	-3,245	-3,654	-1,764	6,226
2008	-3,649	-1,249	6,452	12,916	15,969	29,023
2009	-341	1,448	9,820	11,318	12,850	23,501

5-Year NRD Compliance Standards (2005-2009)

URNRD 9,820 AF

MRNRD 1,448 AF

LRNRD -341 AF



Thank you

Questions?

