



Nebraska Department of
Natural Resources
Preliminary Republican
River Basin Forecast for 2017

November 14, 2016

Jennifer Schellpeper, *Nebraska Department of Natural Resources*





Topic Outline

- Early 2015-2016 Projection with Management Actions
 - Preliminary 2015 and 2016 Accounting Results
 - Early Dry-year Forecast (2017)
 - Compact Call Year Evaluation Flow Chart
 - Forecasted NRD Projections
 - Kansas Compliance Water Request Update
- 

Preliminary Accounting Results
(2015-2016)

Early 2015-2016 Projection with Management Actions (issued Dec. 2015)

	LRNRD	MRNRD	URNRD	Total
2015 Balance (Provisional)	-8,700	-3,300	900	-11,100
2016 Balance (Forecast)	-8,200	-8,500	-18,600	-35,300
2-Year Balance (from Forecast)	-16,900	-11,800	-17,700	-46,400
Management Actions	16,900	11,800	17,700	46,400
2016 Balance with NRD Management Actions	8,700	3,300	-900	11,100
2-Year Balance (with management actions)	0	0	0	0

- *Units are acre-feet unless otherwise noted.

Preliminary 2015 Accounting

Total Actual Compact Balance without NRD actions				-32,800
	LRNRD	MRNRD	URNRD	Total
Actual GW Depletion	48,200	54,700	79,500	182,400
Distribution Percentage	26.4%	30.0%	43.6%	100.0%
Balance by NRD (no action)	-8,600	-9,900	-14,300	-32,800
Total Management Actions	-1,200	5,700	14,600	19,100
2015 Balance	-9,800	-4,200	300	-13,700

Preliminary 2016 Accounting

Year	Item	Information Source
Provisional Data for T=0 (Current Year or Immediate Past Irrigation Season)	Pumping	2015 Pumping
	Surface Water Use	Estimated from preliminary data and previous years values
	Streamflow	Available provisional records – end-of-year estimated
	Evaporation	2015 records and provisional data

Preliminary 2016 Accounting

Total Actual Balance without NRD actions				-31,400
	LRNRD	MRNRD	URNRD	Total
Actual GW Depletion	48,100	56,700	84,200	189,000
Distribution Percentage	25.5%	30.0%	44.5%	100.0%
Balance by NRD (no action)	-8,000	-9,400	-14,000	-31,400
Total Management Actions	13,000	8,900	13,300	35,200
2016 Balance	5,000	-500	-700	3,800

Current 2015-2016 Projection with Management Actions

	LRNRD	MRNRD	URNRD	Total
2015 Balance (preliminary)	-9,800	-4,200	300	-13,700
2016 Balance (projected)	5,000	-500	-700	3,800
Remaining Compact Compliance Volume (RCCV)	-4,800	-4,700	-400	-9,900

Compliance for 2015-2016 accounting period

* 2015 and 2016 include crediting for management actions based on RRCA resolution

Early Dry-Year Forecast (2017)

Dry-Year Forecast

Year	Item	Information Source
Forecast Year T+1 (Coming Irrigation Season)	Groundwater 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: $+(0.1858 \times \text{HCLcontent}) + 9,575$ Nebraska: $-(4 \times 10^{-7}) \times (\text{NE lake volume})^2 + 0.52 \times \text{NElakeVolume} - 42,000$
	Streamflow	$(5\text{-year average of state line flows}) \times 0.41 + 0.23 \times \text{HCLcontent} - 27,450$

Guide Rock Annual Balances

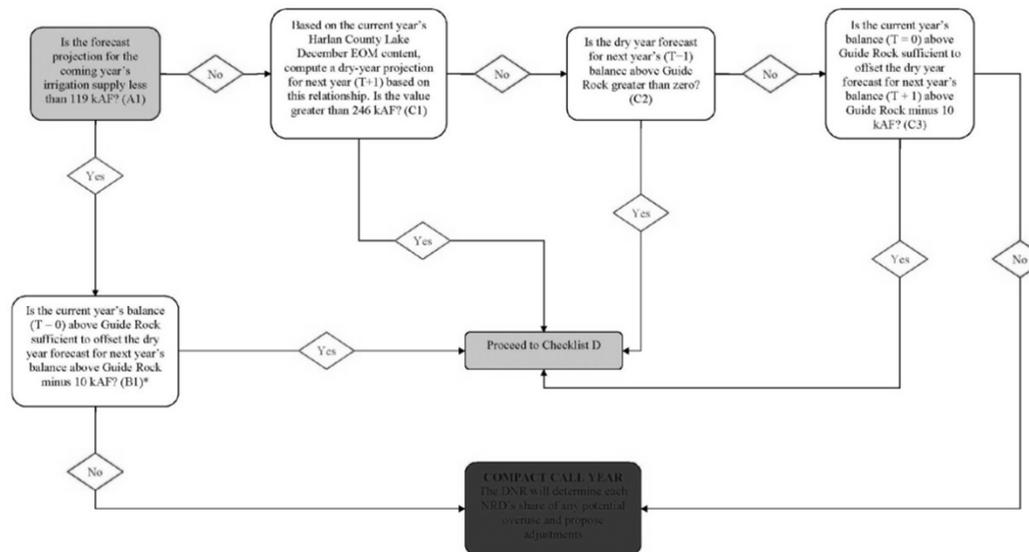
Year	Guide Rock Balance (AF)
T=0 (2016, projected)	3,800
T=+1 (2017, early forecast)	-40,600
2-Year Forecast Balance	-36,800

Compact Call Year Evaluation: Checklist A.

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

YES
Proceed to Checklist B.

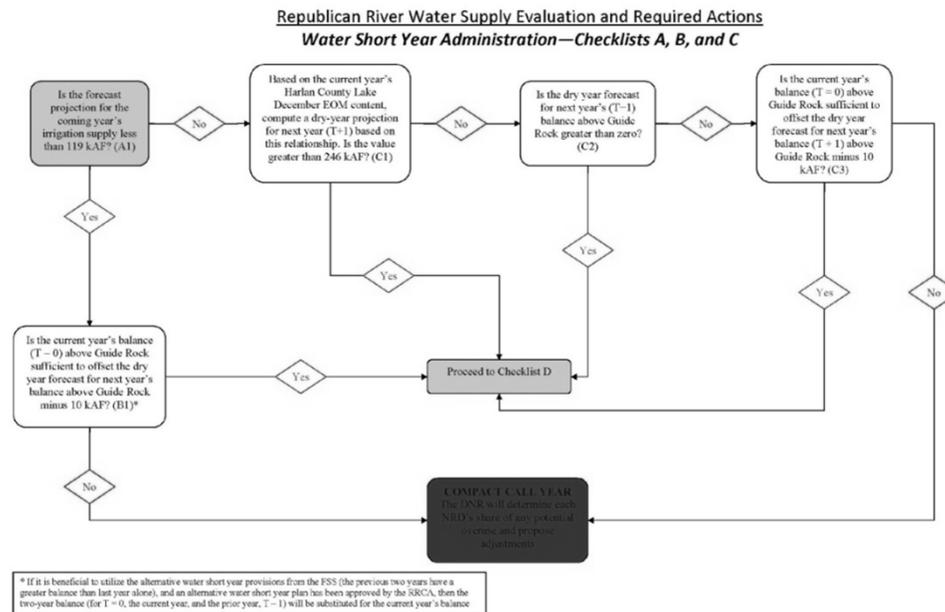
Republican River Water Supply Evaluation and Required Actions
Water Short Year Administration—Checklists A, B, and C



* If it is beneficial to utilize the alternative water short year provisions from the FSS (the previous two years have a greater balance than last year alone), and an alternative water short year plan has been approved by the SRCA, then the two-year balance (for T = 0, the current year, and the prior year, T - 1) will be substituted for the current year's balance

Compact Call Year Evaluation: Checklist B.

Is the current year's balance (T=0) above Guide Rock sufficient to offset the dry year forecast for next year's balance above Guide Rock?
NO – Compact Call Year is Forecast.



NRD-Specific Forecast Balances

NRD Annual Balance Forecast for Upcoming Year (2017)

	LRNRD	MRNRD	URNRD	Total
Allowable Depletion Distribution Percentage from IMPs	24.5%	31.1%	44.4%	100.0%
Allowable Groundwater Depletions	35,600	45,100	64,500	145,200
Projected Groundwater Depletions	48,200	55,700	81,900	185,800
2017 Forecast Balance (no action)	-12,600	-10,600	-17,400	-40,600
Current Year (2016) Balance	5,000	-500	-700	3,800
Total Forecast by NRD (including RCCV)	-7,600	-11,100	-18,100	-36,800

Projected Obligations for Upcoming Year (2017)

	LRNRD	MRNRD	URNRD	Total
2017 Balance (Forecast)	-12,600	-10,600	-17,400	-40,600
2016 Balance (Preliminary)	5,000	-500	-700	3,800
Total Forecast (includes RCCV)	-7,600	-11,100	-18,100	-36,800

Request by Kansas	20,000			
	LRNRD	MRNRD	URNRD	Total
June 1 Requirement	4,000	6,100	9,900	20,000
Projected Remaining Compact Obligation after June 1 actions	3,600	5,000	8,200	16,800

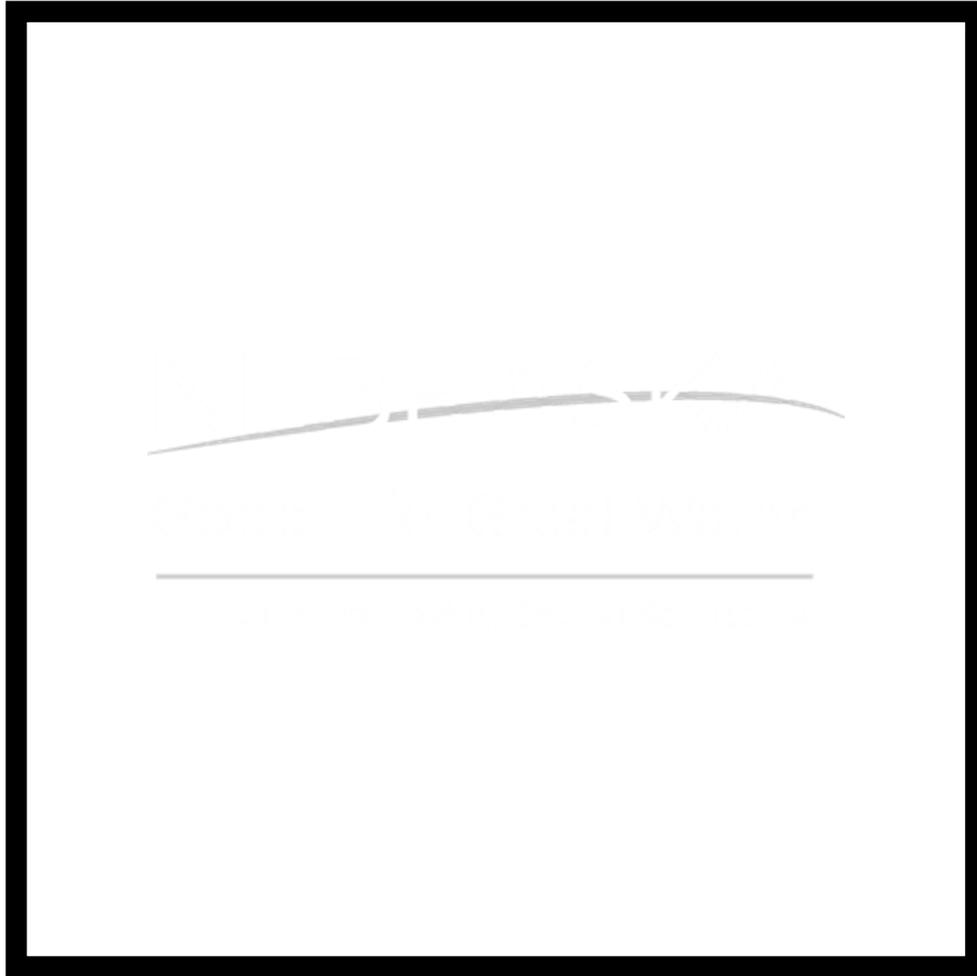
Summary

- Based on the preliminary forecast, the IMP checklist indicates that a Compact Call Year will be in place in 2017
- Preliminary 2016 accounting balance is approximately 3,800 ac-ft with 9,900 ac-ft remaining compact obligation
- Preliminary dry-year forecast balance currently forecasted at approximately -40,600 ac-ft
- Total projected shortfall including remaining compact obligation for 2016-2017 of approximately -36,800 ac-ft
- Kansas requested 20,000 ac-ft delivered by June 1
- Forecasted remaining compact obligation of 16,800 ac-ft after June 1 management actions



Next Steps

- Each NRD will take proportionate management actions to meet the terms of the RRCA resolution and integrated management plan or in the alternative, wells located in the 10/5 area will be curtailed
 - The Department will issue necessary orders and closing notices to implement the RRCA resolution and IMPs
 - The Department will complete its final forecast prior to January 1, 2017
- 



301 Centennial
Mall South
4th Floor
PO Box 94676
Lincoln, NE
68509-4676

402-471-2363