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

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# 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
<b>2-Year Balance (with management actions)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

\*Units are acre-feet unless otherwise noted.

# Preliminary 2015 Accounting

<b>Total Actual Compact Balance without NRD actions</b>				<b>-32,800</b>
	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
<b>2015 Balance</b>	<b>-9,800</b>	<b>-4,200</b>	<b>300</b>	<b>-13,700</b>

# Preliminary 2016 Accounting

Year	Item	Information Source
<b>Provisional Data for T=0 (Current Year or Immediate Past Irrigation Season)</b>	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

<b>Total Actual Balance without NRD actions</b>				<b>-31,400</b>
	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
<b>2016 Balance</b>	<b>5,000</b>	<b>-500</b>	<b>-700</b>	<b>3,800</b>

## Current 2015-2016 Projection with Management Actions

	<b>LRNRD</b>	<b>MRNRD</b>	<b>URNRD</b>	<b>Total</b>
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	$(5\text{-year average of state line flows}) \times 0.41 + 0.23 \times \text{HCLcontent} - 27,450$

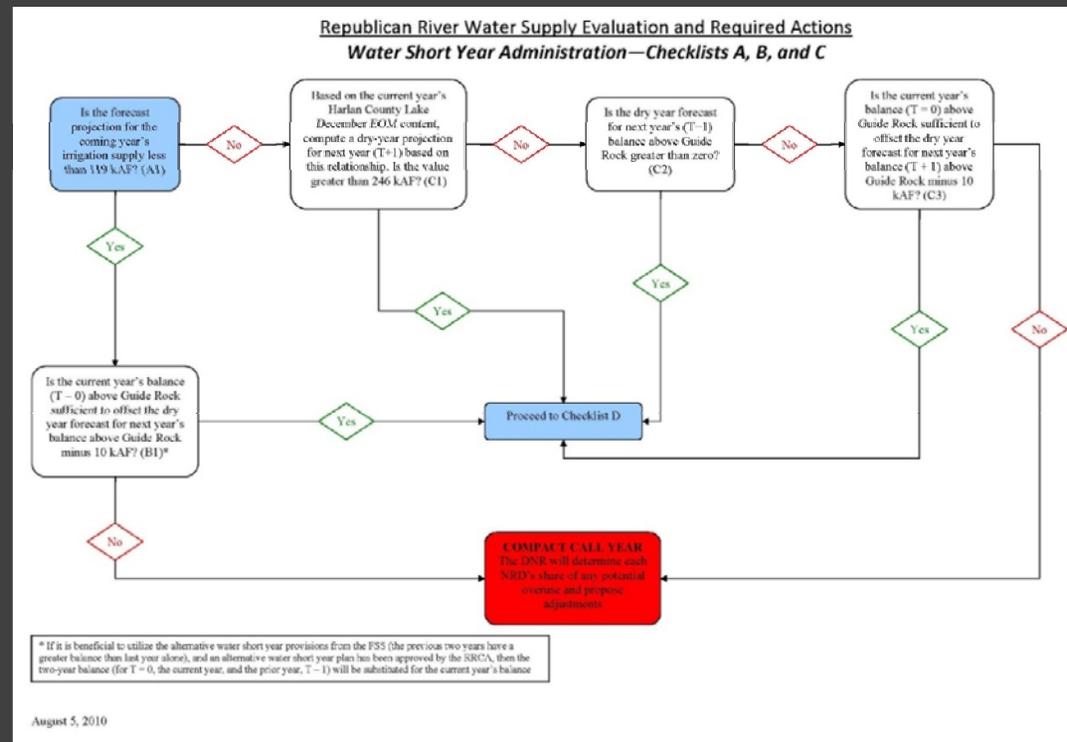
# Guide Rock Annual Balances

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?

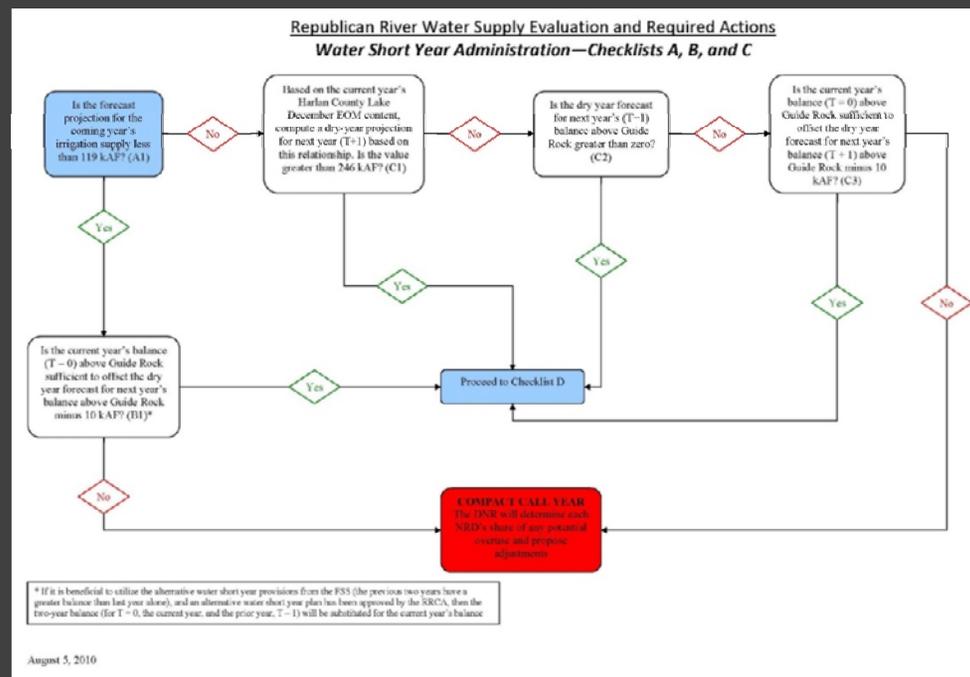
**YES**  
Proceed to Checklist B.



# 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
<b>Total Forecast by NRD (including RCCV)</b>	<b>-7,600</b>	<b>-11,100</b>	<b>-18,100</b>	<b>-36,800</b>

# Projected Obligations for Upcoming Year (2017)

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

<b>Request by Kansas</b>	<b>20,000</b>			
	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

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