SPNRD IMP

Meeting 3

SOUTH PLATTE
NATURAL RESOURCES DISTRICT

NEBRASKA
DEPT. OF NATURAL RESOURCES

TODAY'S AGENDA

1. Welcome
2. Administration
    a. August Meeting Recap
3. Adjacent States Issue
4. Overview of Basin-Wide Plan
    a. Total Depletions
5. 2nd Increment Discussion
    a. Municipal and Industrial Plan
    b. Drought Mitigation Plan
6. Public Comment

WELCOME

- Open Meeting Notice
- Safety & Logistics

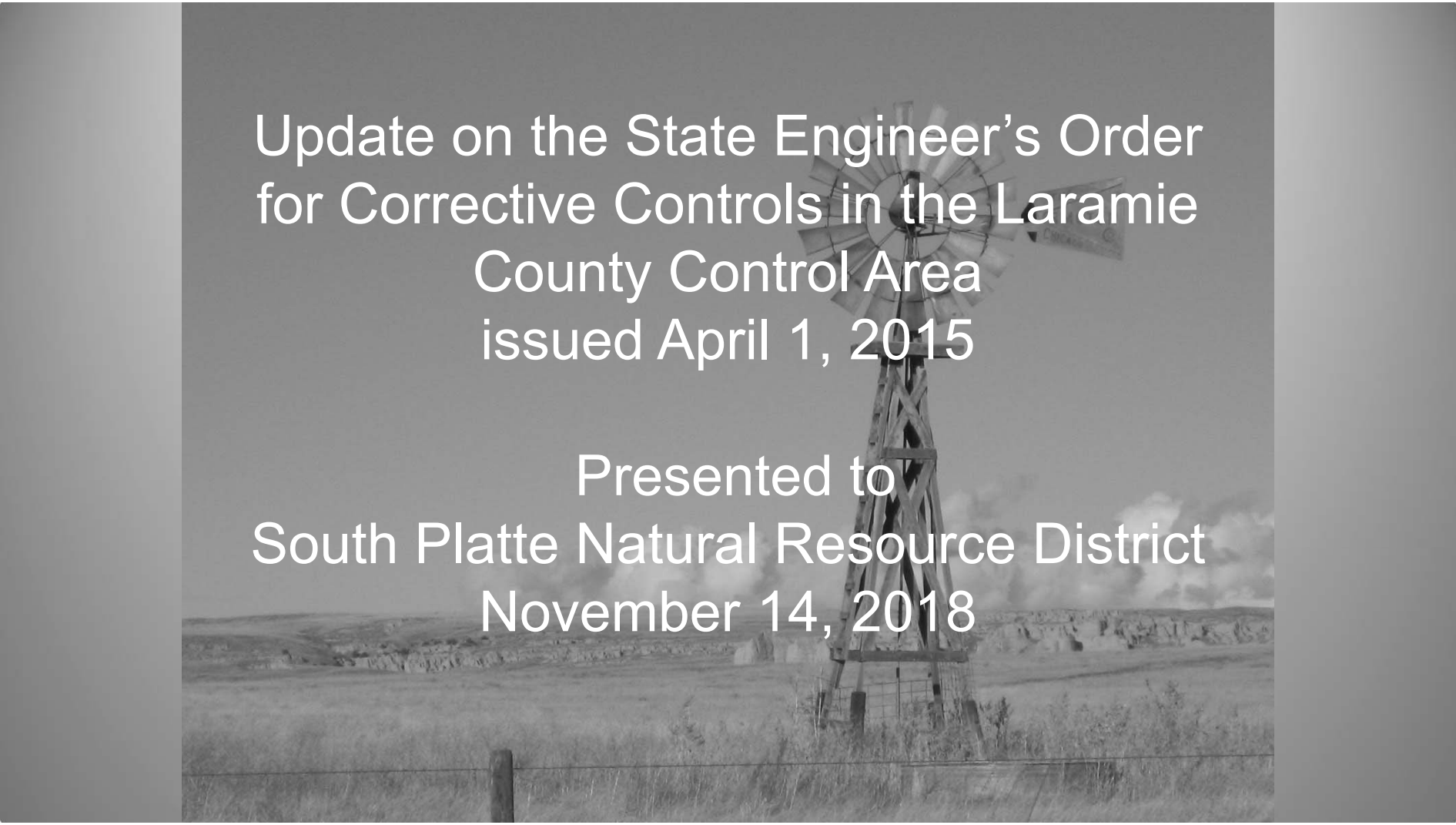
ADMINISTRATION

August Meeting Recap

AUGUST MEETING RECAP

- First Increment Regulatory Actions by SPNRD
  - Distinction for separate areas?
- Robust Review Results
  - Goals of the analysis
  - Maintain progress made
- Homework for the group
- Prioritized topics to discuss at next meeting

ADJACENT STATES ISSUE

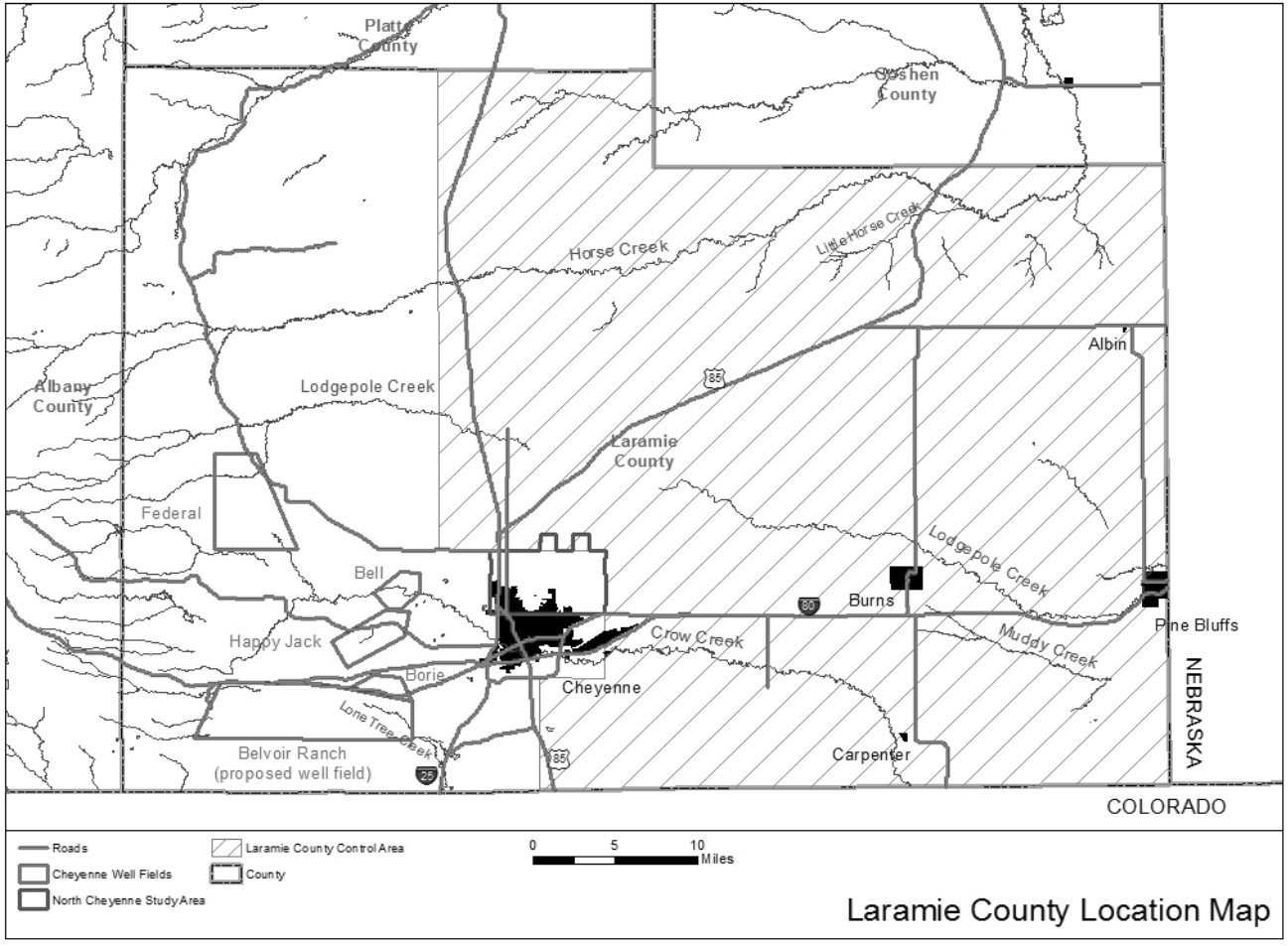


Update on the State Engineer's Order for Corrective Controls in the Laramie County Control Area issued April 1, 2015

Presented to
South Platte Natural Resource District
November 14, 2018

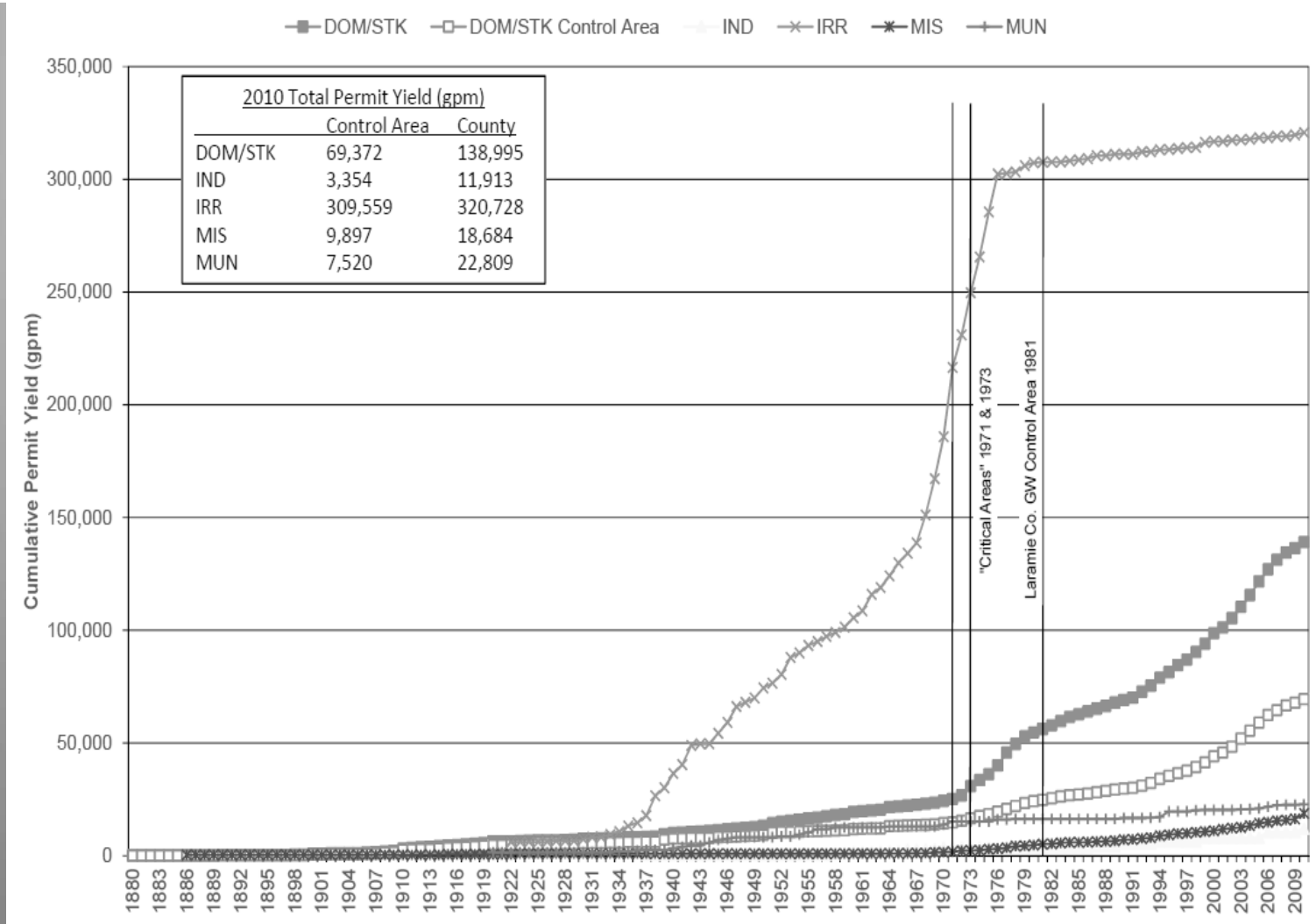
Background

1. In July, August and October 1976 the State Engineer received written requests from appropriators in various parts of Laramie County for creation of control areas.
2. The Creation of Control Area(s) was discussed at 13 separate meetings between February 1977 and September 1981.
3. Laramie County Control Area Created By Board of Control Order on September 2, 1981


Platte County
Goshen County
Horse Creek
Little Horse Creek
Albin
Albany County
Lodgepole Creek
Laramie County
Federal
Bell
Happy Jack
Borie
Lone Tree Creek
Belvoir Ranch
(proposed well field)
Cheyenne
Crow Creek
Burns
Lodgepole Creek
Muddy Creek
Pine Bluffs
Carpenter
NEBRASKA
COLORADO
Roads
Cheyenne Well Fields
North Cheyenne Study Area
Laramie County Control Area
County
0 5 10
Miles
Laramie County Location Map

Additional Background

4. The Board of Control created the Laramie County Control Area as a result of:
   a) Declining Water Levels
   b) To mitigate the future potential for conflicts between groundwater users within the control area


DOM/STK
DOM/STK Control Area
IND
IRR
MIS
MUN
2010 Total Permit Yield (gpm)
Control Area
County
DOM/STK 69,372 138,995
IND 3,354 11,913
IRR 309,559 320,728
MIS 9,897 18,684
MUN 7,520 22,809
Cumulative Permit Yield (gpm)
350,000
300,000
250,000
200,000
150,000
100,000
50,000
0
"Critical Areas" 1971 & 1973
Laramie Co. GW Control Area 1981
1880 1883 1886 1889 1892 1895 1898 1901 1904 1907 1910 1913 1916 1919 1922 1925 1928 1931 1934 1937 1940 1943 1946 1949 1952 1955 1958 1961 1964 1967 1970 1973 1976 1979 1982 1985 1988 1991 1994 1997 2000 2003 2006 2009

Additional Background

- Discussions began in early 2009 related to declining groundwater levels due to increased consumptive use in the Pine Bluffs area
- In April 2012 the State Engineer issued a Temporary Order aimed at mitigating further declines and to provide an opportunity to develop a methodology for future groundwater management.

Additional Background

- The State Engineer commissioned a Hydrogeologic study of the Laramie County Control Area.
- Temporary Order extended to March 31, 2014 to allow completion of Hydrogeologic Report.
- Order Issued by State Engineer for Corrective Controls within the Laramie County Control Area 1st Day of April 2015.

10. This Order shall remain effective until rescinded, superseded, or modified by another order of the State Engineer, or replaced by an appropriator agreement as envisioned in Wyoming Statute § 41-3-915 (c) and approved by the State Engineer. The State Engineer may, at any time, issue clarifying guidance or interpretations related to this Order.

Dated this 1st Day of April 2015.

Patrick T. Tyrrell

Patrick T. Tyrrell, State Engineer

The order outlines stipulations for existing and new water rights within the Laramie County Control Area, I will give an update on a subset of the stipulations, namely

2. Adjudication of Existing underground water appropriations
3. Installation of flow meters and production reporting
8. Evaluation of the effects of the first three years of the Order

Order Stipulation 2.

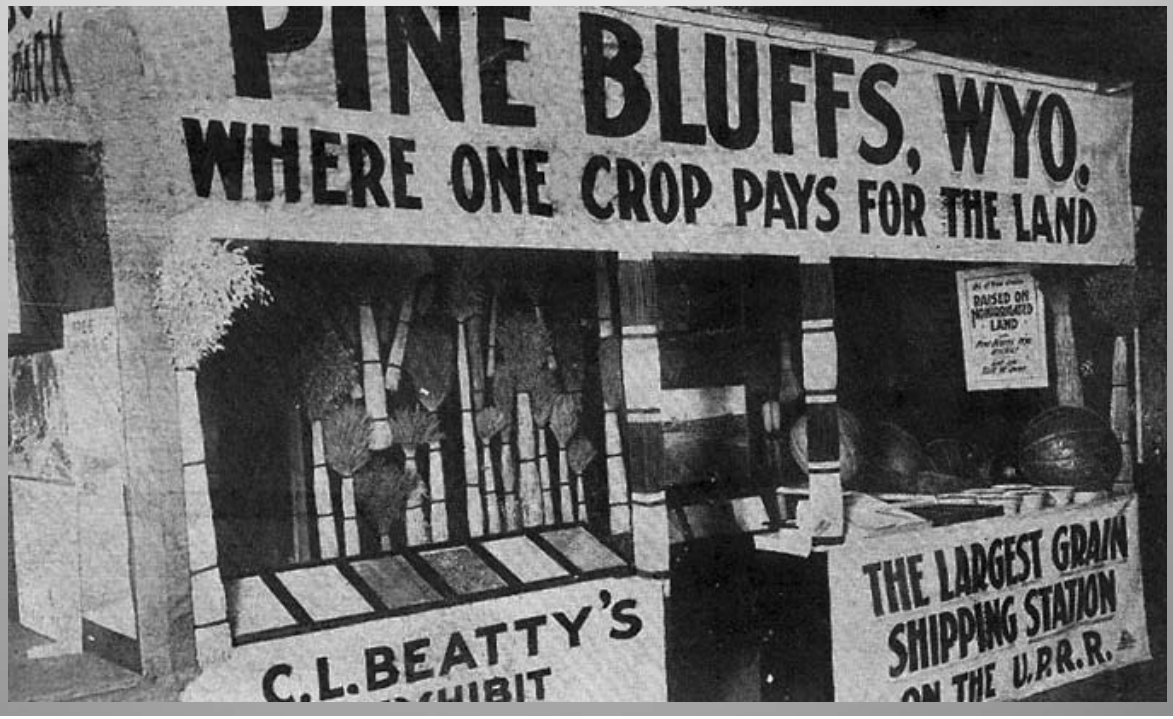
2. Upon receiving concurrence o the BOC, I order adjudication of all unadjudicated, non time-limited, Irrigation, municipal, industrial, and miscellaneous use underground appropriations (including enlargements), developed in the High Plains Aquifer within the LCCA. All such unadjudicated appropriations must be adjudicated by November 30, 2017. Wells that are not adjudicated by this date will be Tagged, Locked, and foreclosed from use until adjudication is complete.

Status as of January 15, 2018 for underground water rights requiring adjudication

Total requiring adjudication - 180

- 89 have been adjudicated, canceled/abandoned, or use removed that required adjudication
- 45 are pending adjudication
- 37 have had no action
- 9 have issues in addition to stipulations of the Order that need addressed

Order Stipulation 3.



3. Prior to use in water year 2017, all irrigation, municipal, industrial, and miscellaneous use wells completed in the High Plains Aquifer shall be fitted with functional and accurate flow meters properly sized for the flow rate of the well pump and approved by the Water Division I Superintendent. All such meters must be kept in proper working order and maintained to the Superintendents satisfaction. Wells without an approved and properly functioning flow meter shall not be pumped after September 30, 2016. Upon receiving the advice and consent of the BOC, no later than November 15 of each year, appropriators must deliver monthly and annual reports on total groundwater production for the immediately prior water year, for each well so metered, to the SEO Ground Water Division on forms provided by the SEO. For example, Total monthly and annual well production for any such well during water year 2017 (October 1, 2016 through September 30, 2017) shall be delivered to the SEO Ground Water Division by November 15, 2017.

Status of Meter Installation as of November 14, 2018

- 642 active water rights affected by the Order
- 575 individual wells, 67 enlargements
- of the 575 required meters,
  - 484 inspections have been completed
  - 126 have been “regulated off”

Monthly and Annual Reports Received

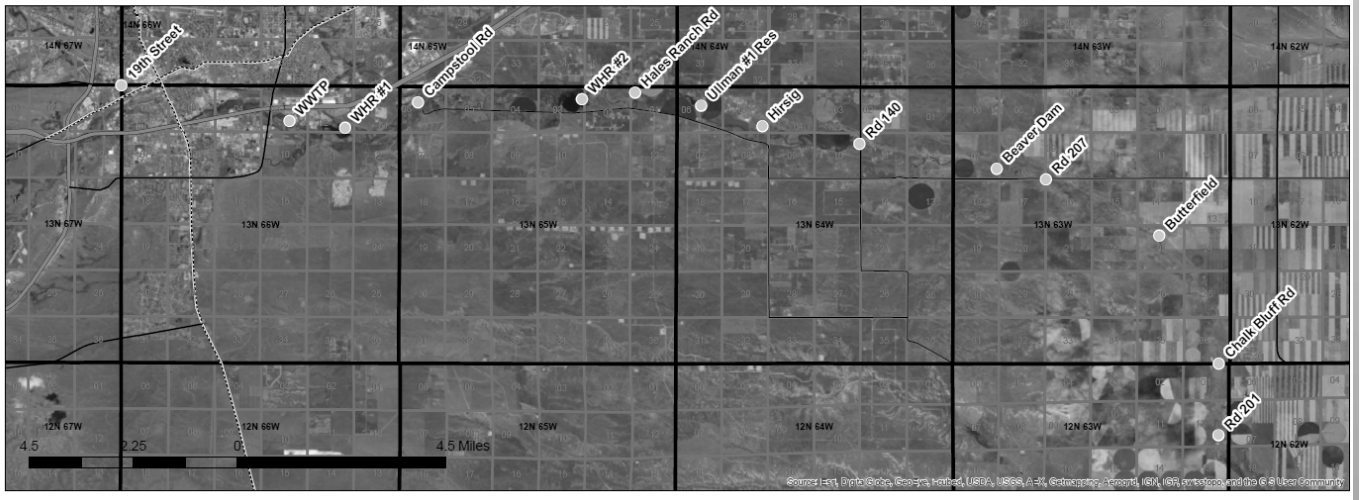
as of November 14, 2018

- 642 active permits require monthly and annual production reports under the order
  - total Includes the 67 enlargement water rights
- Received production reports in part for 149 water rights
  - Some of the 149 may have included only monthly or annual total, not both
- Received complete reports for WY-2017 on 108 water rights

Order Stipulation 8.

8. Beginning November 16, 2019, the State Engineer will review the effects of the first three Years of Operation under this Order and determine, following a public hearing and comment period, whether or not the terms of this Order shall continue to apply or whether a new order should be issued.

Crow Creek Surface Water Monitoring Locations, June 2018



1. 19th Street – Bubbler. Measure Crow Creek incoming flows and maintain historic USGS gage location.
2. WWTP – Stage. Measure accretions from urban runoff.
3. WHR #1 Res. – Stage and Baro. Measure stage (and change thereof) from water deliveries.
4. Campstool Rd. – Stage. Measure inflow to WHR #2.
5. WHR #2 Res. – Stage and Baro. Assess change from water deliveries.
6. Hales Ranch Rd. – Stage. Measure inflow to Ullman #1.
7. Ullman #1 Res – Stage and Baro. Assess change from water deliveries.
8. Hirsig – Stage. Measure Creek and future inflows to Campstool Res.
9. Rd 140 – Stage and Baro. Measure natural flow and future deliveries from Campstool Res.
10. Beaver Dam – Two Stages. Measure natural flow and Diversion.
11. Rd 207 – Stage and Baro. Measure early return flow from Beaver Dam.
12. Butterfield – Stage. Stream losses and accretions from total Beaver Dam diversion.
13. Chalk Bluff Rd. – Stage and Baro. Measure losses in section to Carpenter.
14. Rd 201 – Stage. Measure losses in section below Carpenter. Location 1 mile from state line and upstream of historic Mackley Res.

DRAFT


Where do we go from here?
Questions?

Presented by:

Jeremy Manley
Ground Water Division
Wyoming State Engineer's Office

Adam Skadsen
Water Division I , District 1
Hydrographer /Commissioner
Wyoming State Engineer's Office

DRAFT BASIN-WIDE PLAN

Goals & Objectives
Total Depletions

Basin-wide Plan Goals and Objectives (Draft)

Goals

1. Incrementally achieve and sustain a fully appropriated condition, while maintaining economic viability, social and environment health, safety, and welfare of the basin
2. Prevent or mitigate human-induced reductions in the flow of a river of stream that would cause non-compliance with an interstate compact or decree or other formal state contract or agreement
3. Partner with municipalities and industries to maximize conservation and water use efficiency
4. Work cooperatively to identify and investigate disputes between groundwater users and surface water appropriators and, if determined appropriate, implement management solutions to address such issues
5. Keep the Upper Platte River Basin-Wide Plan current and keep stakeholders informed

Goal 1: **Incrementally achieve and sustain a fully appropriated condition**, while maintaining **economic viability**, **social and environment health, safety, and welfare of the basin**

1.1 Maintain **previous increment mitigation** progress

1.2 **Offset impacts of streamflow depletion** to (A) surface water appropriations and (B) water wells constructed in aquifers dependent on recharge from streamflow **to the extent those depletions are due to water use initiated after July 1, 1997**

1.3 **Make progress toward a fully appropriated condition**

1.4 **Conduct technical analyses** to support and evaluate effectiveness of plan and adequacy in sustaining progress toward a fully appropriated level of water use

1.5 **Use available funds and actively pursue new funding opportunities** to cost effectively offset depletions, as well as to develop, maintain and update data and analytical tools needed to implement this plan

1.6 **Update and continue implementing IMPs** in each Platte River Basin NRD

Goal 1: **Incrementally achieve and sustain a fully appropriated condition**, while maintaining **economic viability**, **social and environment health, safety, and welfare of the basin**

1.3 Make progress toward a fully appropriated condition

- 1.3.1: Understand the economic impacts of supply variability on water users
- 1.3.2: Assess short- and long- term basin water supply and demand
- 1.3.3: Explore and implement potential measures to mitigate impacts (hydrologic and economic) of basin supply variability due to human-made depletions on surface water and groundwater users
- 1.3.4: Develop a basin drought contingency plan for management of supplies during times of shortage

Goal 2: **Prevent or mitigate human-induced reductions** in the flow of a river or stream **that would cause non-compliance** with an interstate compact or decree or other formal state contract or agreement

2.1 **Prevent human-induced streamflow depletions that would cause non-compliance** by Nebraska with the Nebraska New Depletion Plan included within the Platte River Recovery Implementation Program, for as long as the Program exists

Goal 3: **Partner with municipalities and industries to maximize conservation and water use efficiency**

3.1 Continue to **collect data on water use and existing conservation plans** of municipalities and industries within the basin

3.2 Invite municipalities and industries to the **annual meetings**

3.3 **Establish baseline water use levels** for each municipal and industrial user by **January 1, 2026**

Goal 4: Work cooperatively to **identify and investigate disputes between groundwater users and surface water appropriators** and, if determined appropriate, implement management solutions to address such issues

4.1 **Identify disputes** between groundwater users and surface water appropriators

4.2 **Investigate and address issues** between groundwater users and surface water appropriators, based on investigation results

Goal 5: **Keep the Upper Platte River Basin-Wide Plan current and keep stakeholders informed**

5.1 **Meet at least annually** to review progress toward achieving the goals and objectives of this Upper Platte River Basin-Wide Plan and those portions of the individual NRD IMPs that implement this plan

5.2 **Improve information sharing** with interested stakeholders

5.3 **Conduct planning for subsequent increments** of the plan, as necessary

DRAFT BASIN-WIDE PLAN
TOTAL DEPLETIONS

Robust Review – Recap & Total Depletions

SPNRD Results

SPNRD IMP Stakeholder Meeting #3

November 14, 2018

Robust Review Goals

- **Complete monitoring activities outlined in the current IMP**
- **Assess progress on first increment goals and objectives**
- **Provide for more informed discussion of second increment objectives with the SPNRD IMP stakeholders**

Robust Review Model Simulation Setup

WWUMM Area Assumptions

- Used historical calibrated version of the groundwater and watershed models (Run 028/LU004/NIR set 2 for GW only lands)
- Model is simulated from 1953 – 2063
- Irrigation pumping repeats 2009-2013 in the baseline simulation and 1997 acres and crop types in the “1997” simulation with 2009-2013 weather repeated into the future
- **Municipal and Industrial baseline simulation estimates use through time to 2013 and “1997” simulation is held constant**
- Surface water and commingled acres remain constant in the baseline and 1997 simulations to cancel out commingled effects
- Results are summarized for three areas: 1) North Platte River; 2) South Platte River; and 3) Lodgepole Creek

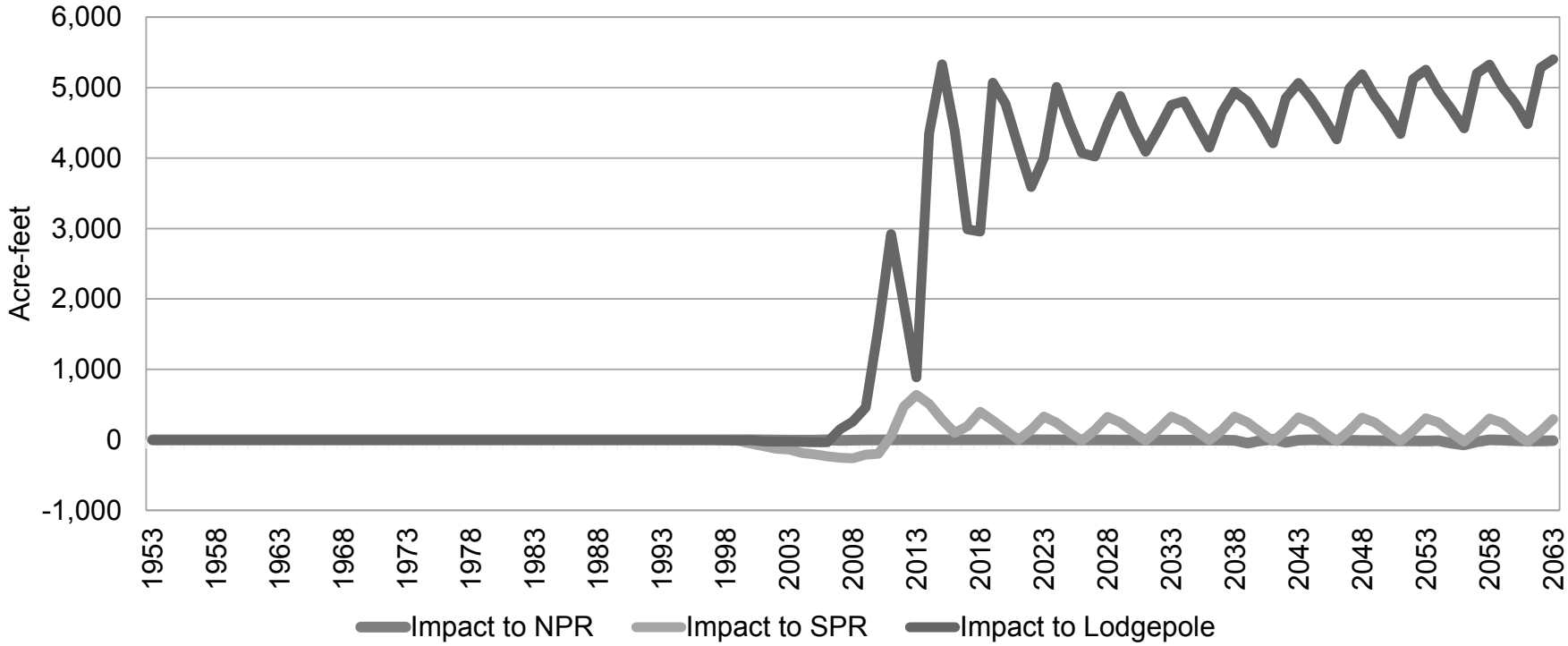
Post-1997 Summary

It is the first step toward reaching a fully appropriated condition

- Positive values = increases to streamflow
- Negative values = decreases to streamflow

SPNRD Results

Impact to North Platte River, South Platte River, and Lodgepole Creek in SPNRD from Post-1997 **Changes** and Western Canal Recharge Events



SPNRD Results

Post-1997 estimates

	Year	2019	2029	50-year
North Platte River	**Current IMP**	-13		-150
	Updated Estimate	0	0	0 to -20
South Platte River	**Current IMP**	-149		-400
	Updated Estimate	280	250	0 to 300
Lodgepole Creek	**Current IMP**	-63.9		-150
	Updated Estimate	5,070	4,880	4,500 to 5,400

- All values in acre-feet/year

- Positive values = increases to streamflow
- Negative values = decreases to streamflow

Total Depletions

Indicates what more may need to be done

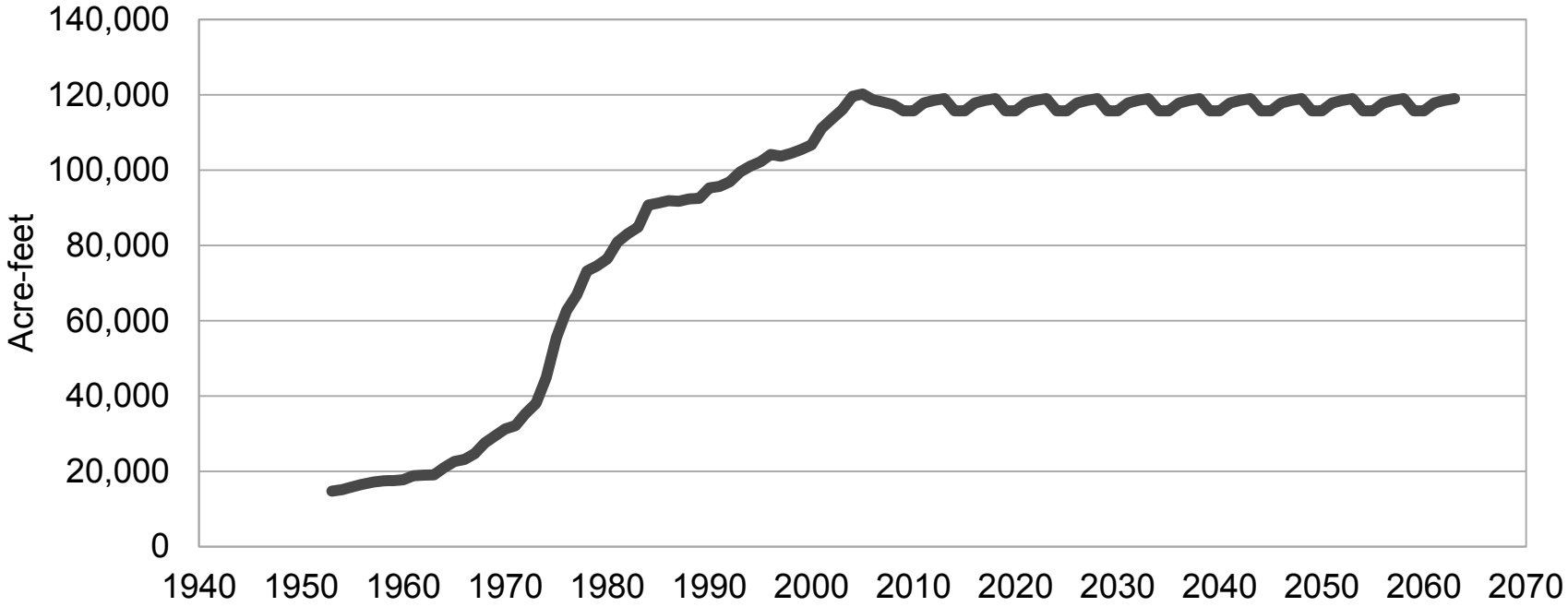
SPNRD Inputs
(Change in acres)

Change in groundwater-only irrigated acres 1953-2013

SPNRD	Total change (1953 to 2013)
District-Wide	**104,200 acres**

SPNRD Inputs

Groundwater-only irrigated acres from 1953, District-wide

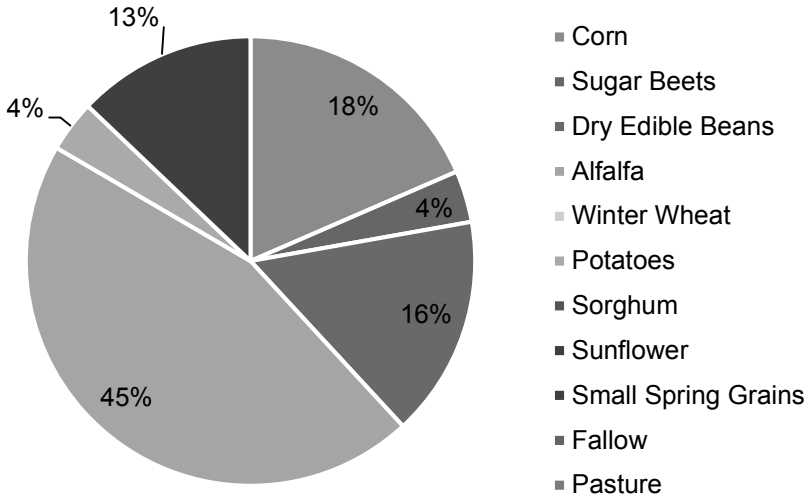


SPNRD Inputs

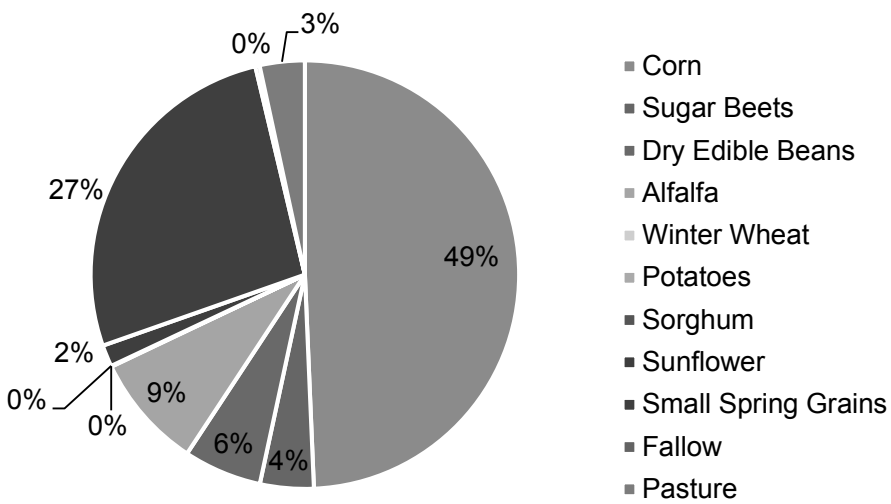
(Changes in crop type, District-wide)

Change in groundwater-only irrigated acre crop types 1953-2013

1953
14,700 GW-only irrigated acres



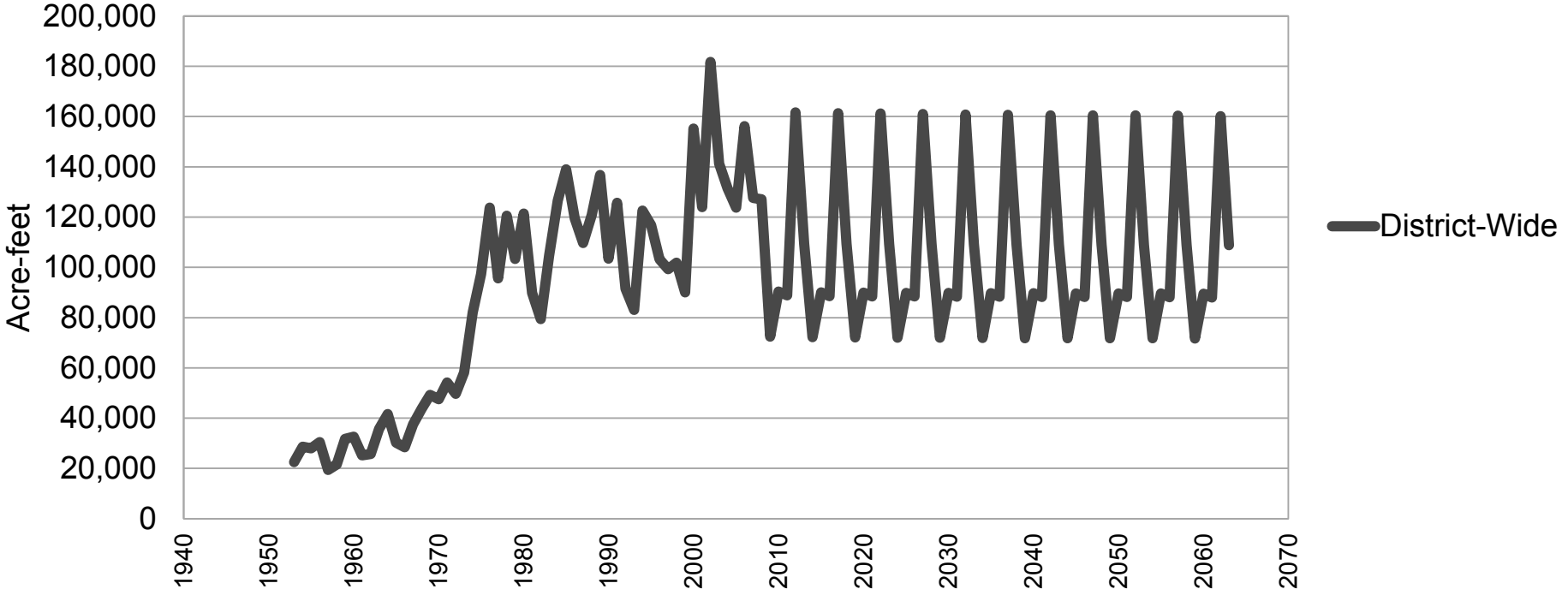
2013
119,000 GW-only irrigated acres



SPNRD Inputs

Changes to Pumping, District-Wide

Groundwater-only irrigation pumping (104,200 acres) AND municipal/industrial pumping

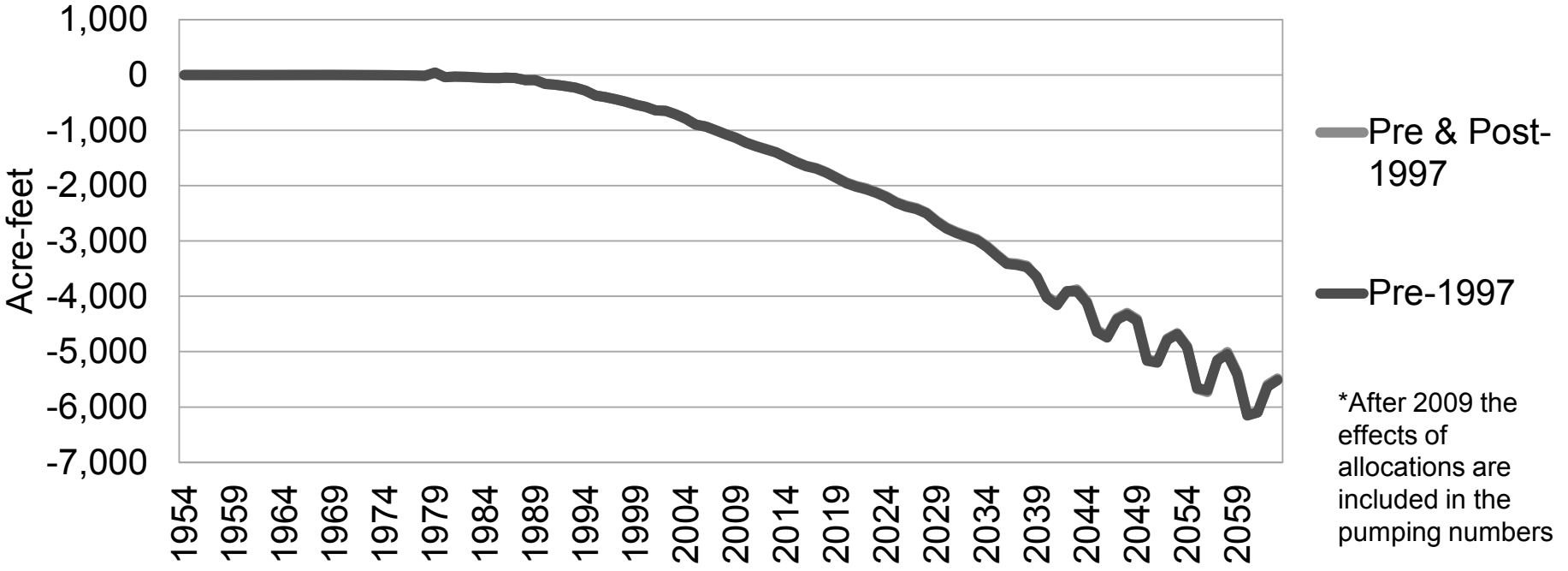


- Positive values = increases to streamflow
- Negative values = decreases to streamflow

SPNRD – North Platte River

Total impact to streamflow from pumping

Groundwater-only irrigated acres and municipal/industrial uses



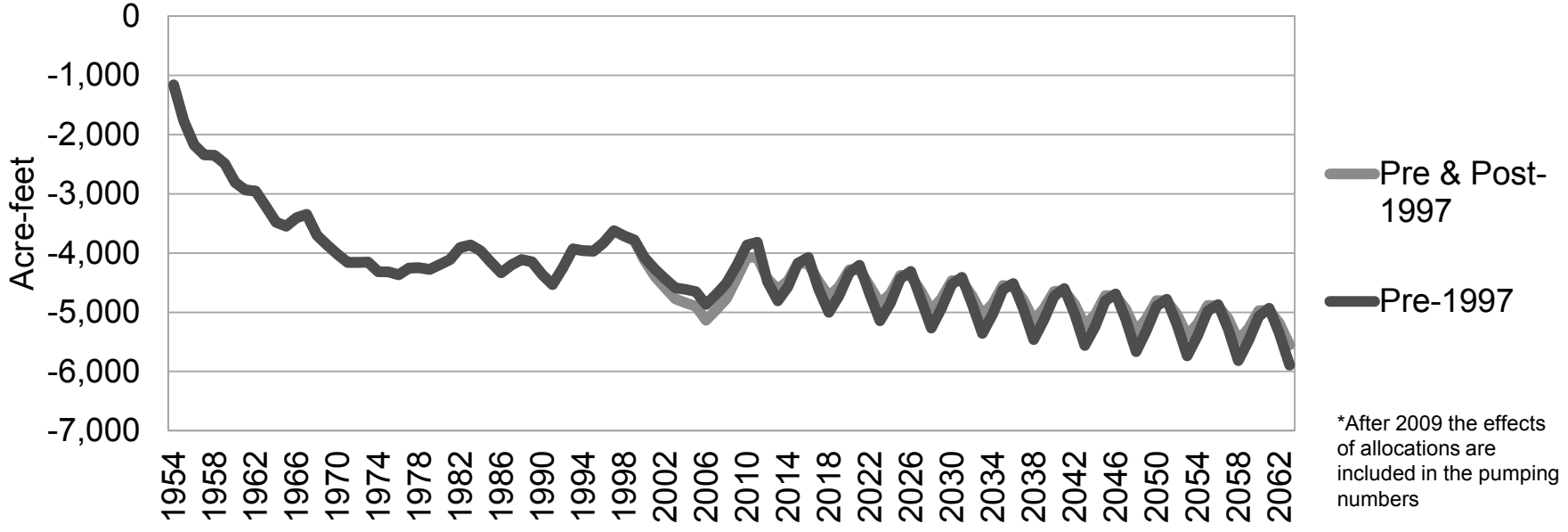
*After 2009 the effects of allocations are included in the pumping numbers

- Positive values = increases to streamflow
- Negative values = decreases to streamflow

SPNRD – South Platte River

Total impact to streamflow from pumping

Groundwater-only irrigated acres and municipal/industrial uses



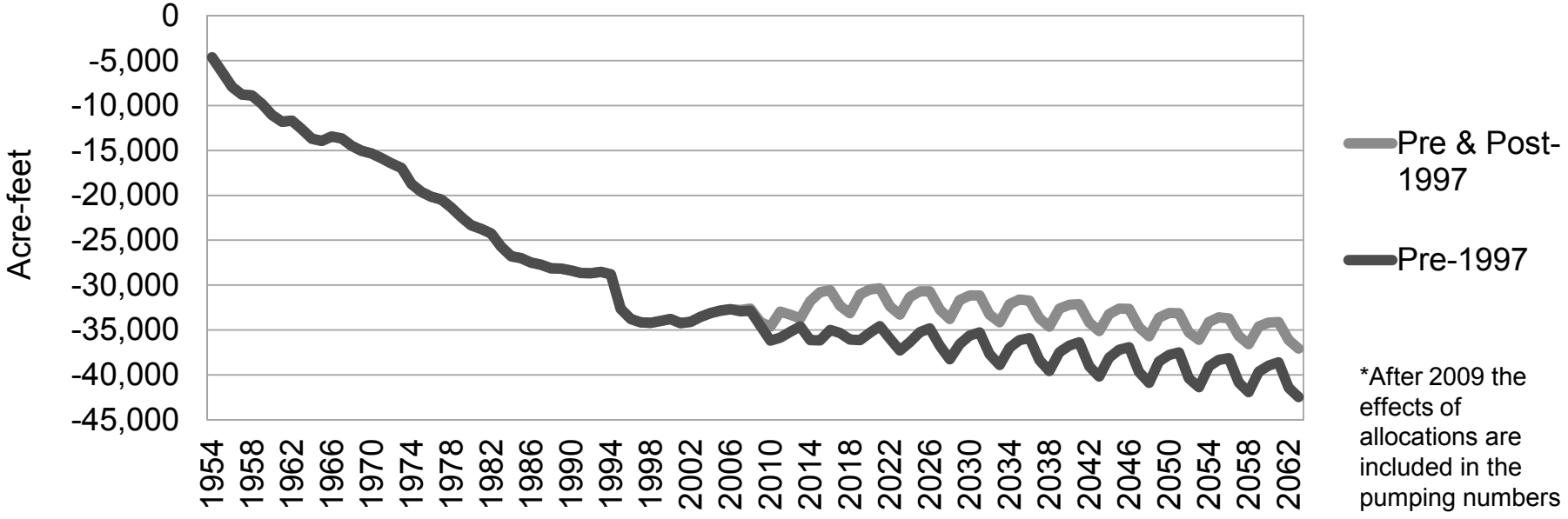
*After 2009 the effects of allocations are included in the pumping numbers

- Positive values = increases to streamflow
- Negative values = decreases to streamflow

SPNRD – Lodgepole Creek

Total impact to streamflow from pumping

Groundwater-only irrigated acres and municipal/industrial uses



*After 2009 the effects of allocations are included in the pumping numbers

Post-1997

Is the first step toward reaching a fully appropriated condition

Total Depletions

Indicates what more may need to be done

2ND INCREMENT DISCUSSION

Proposed Municipal & Industrial Changes
Drought Mitigation Plan

SOUTH PLATTE
NATURAL RESOURCES DISTRICT

NEBRASKA
DEPT. OF NATURAL RESOURCES

2ND INCREMENT DISCUSSION
PROPOSED MUNICIPAL & INDUSTRIAL CHANGES

BWP Municipal & Industrial Goals

- Goal 3: Partner with **municipalities and industries** to **maximize conservation and water use efficiency**.
  - Objective 3.1: Continue to collect data on **water use and existing conservation plans** of municipalities and industries in the basin.
  - Objective 3.2: Invite municipalities and industries to the **annual meetings**.
  - Objective 3.3: Establish **baseline water use levels** for each municipal and industrial user by **January 1, 2026**

PROPOSED MUNICIPAL / INDUSTRIAL CHANGES - FOR 2ND INCREMENT IMP

- 2 Parts to IMP Municipal and Industrial Changes
  - 1st part will cover 2019-2025
  - 2nd part will cover 2026 and after
- 2019-2025 IMP language will be revised to be similar to other Upper Platte Basin NRDs IMP language
  - The current language in the SPNRD IMP is very detailed and can be greatly simplified
  - Even though the language will be simplified, the reporting and tracking of municipal/industrial usage will not change. The only exception is that reporting and tracking can be done on the calendar year instead of the August 1st through July 31st timeframe.
  - The simplified language could provide more flexible opportunities for offsetting water consumed over the municipal or industrial baseline

PROPOSED MUNICIPAL/INDUSTRIAL CHANGES FOR 2ND INCREMENT IMP

- Summary of current statute language
  - Neb. Stat. § 46-740 states that an IMP, rule, or order cannot limit the use of groundwater by a municipality or non-municipal commercial/industrial use within a designated fully or over appropriated area until January 1, 2026.
  - Neb. Stat. § 46-740 also states that on and after January 1, 2026, the base amount for an annual allocation to a municipality shall be determined as the greater of either (a) the amount of water authorized by a permit issued pursuant to the Municipal and Rural Domestic Ground Water Transfers Permit Act or (b) the greatest annual use prior to January 1, 2026.

CHANGE #1

- Accounting Year
  - Currently: August 1st to July 31st
  - 2026 (or before): January 1st to December 31st
- Accounting Period
  - Currently: 1 year period within the 28%/40 year line (South Platte Valley) and 5 year period everywhere else
  - 2026: 5 year period Districtwide
- Reasons:
  - Easier time frame to track
  - Matches irrigation season
    - Making transfers and offsets easier

CHANGE #2

- Municipal Baselines Updated
  - Currently: Greatest annual use for governmental, commercial, and industrial use plus a per capita allowance based on a August 1, 2001 through July 31, 2006 timeframe
  - 2026: Greatest annual use for governmental, commercial, and industrial use prior to January 1, 2026 plus a per capita allowance based on calendar year timeframe

- Reasons:
  - Required by statute

CHANGE #3

- Any new Industry that does not have an established baseline as of 2026 will be responsible for offsetting all new water use.
  - Currently: NRD is responsible for providing up to 25 million gallons offset for offsetting new consumptive uses
  - 2026: Industrial user will be responsible for offsetting all new consumptive uses

- Reasons:
  - Several existing industrial wells do not have a baseline established currently, if those wells become active in the future they will need to obtain their own offsets

CHANGE #4

- Offsets for expanded Industrial growth with an existing baseline
  - Currently: NRD is responsible for offsetting new or expanded consumptive water use if the baseline is exceeded up to 25 million gallons per year. Industrial user is responsible for offsetting new or expanded consumptive water use if the baseline is exceeded by more than 25 million gallons per year
    - Example: Baseline is 10 million gallons; user pumps between 10 million and 35 million gallons the NRD has to offset; user pumps greater than 35 million gallons they have to offset
  - 2026: Industrial user is responsible for offsetting any new or expanded water use over the baseline. Will have to have an approved NRD offset in place within one year of the end of an accounting period overage
    - Example: Baseline is 10 million gallons; user pumps any amount over 10 million gallons they have to offset

- Reasons:
  - Fairness between users. Irrigators are responsible for all offsets if their allocation is exceeded, now it will be the same for industries

SUMMARY OF MAJOR CHANGES

- Accounting time frame changes to calendar year
- Municipal baselines could change in 2026
- All Municipalities and Industries will have a 5 year accounting period handled the same without regard to the NNDP 28%/40-year area and will have a five-year accounting period
- SPNRD will not be responsible for offsetting uses over the industrial baseline amount in 2026
- Remove the requirement for municipal water conservation plans after 2026.

2ND INCREMENT DISCUSSION
DROUGHT MITIGATION PLAN

BWP Drought Planning Goals

- Action Item 1.3.4: Develop a basin drought contingency plan for management of supplies during times of shortage
  - Action Item 1.3.4.1: Develop a basin drought monitoring protocol for defining and determining drought conditions
  - Action Item 1.3.4.2: Identify potential basin-wide mitigation and response actions to drought conditions and opportunities for cooperation across the basin (that is, management of storage water)
  - Action Item 1.3.4.3: Conduct a drought simulation workshop with NeDNR, NRDs, and water users to assist in developing and testing of protocols during a drought
  - Action Item 1.3.4.4: Identify roles for administering and implementing basin drought contingency plan

Stakeholder Feedback

- What problems do you face in drought?
- What is a drought plan to you?
- Would you be interested in participating in a drought workshop?

South Platte NRD Drought Management Plan

- What Will The Plan Accomplish?
  - Identify district vulnerabilities
  - Create method of monitoring drought conditions
  - Identify and prioritize mitigation and response actions to reduce future drought impacts
  - Become a tool to assist the NRD in water resources management
  - Lead to a more sustainable and stable water supply for all users across the district

South Platte NRD Drought Management Plan

- How Will This Be Accomplished?
  - Data collection/analysis of historic records
  - Drought Tournament with stakeholders
  - Development of a Drought Management Plan
    - Develop “Local” drought thresholds
    - Identify Mitigation Alternatives
    - Develop protocol for monitoring and forecasting

NEXT STEPS

ANYTHING ADDITIONAL?

- Is there anything else you believe should be considered for incorporation into the IMP?

MEETING DATES

- January 16, 2019

PUBLIC COMMENT

Thank you