Cook Tract Recapture Well Operations

PRRIP Governance Committee
September 13, 2016

PLATTE RIVER
RECOVERY IMPLEMENTATION PROGRAM

Overview

- Project background
- Score assumptions & modeling
- Pilot operation plan
- Water accounting with Phelps recharge

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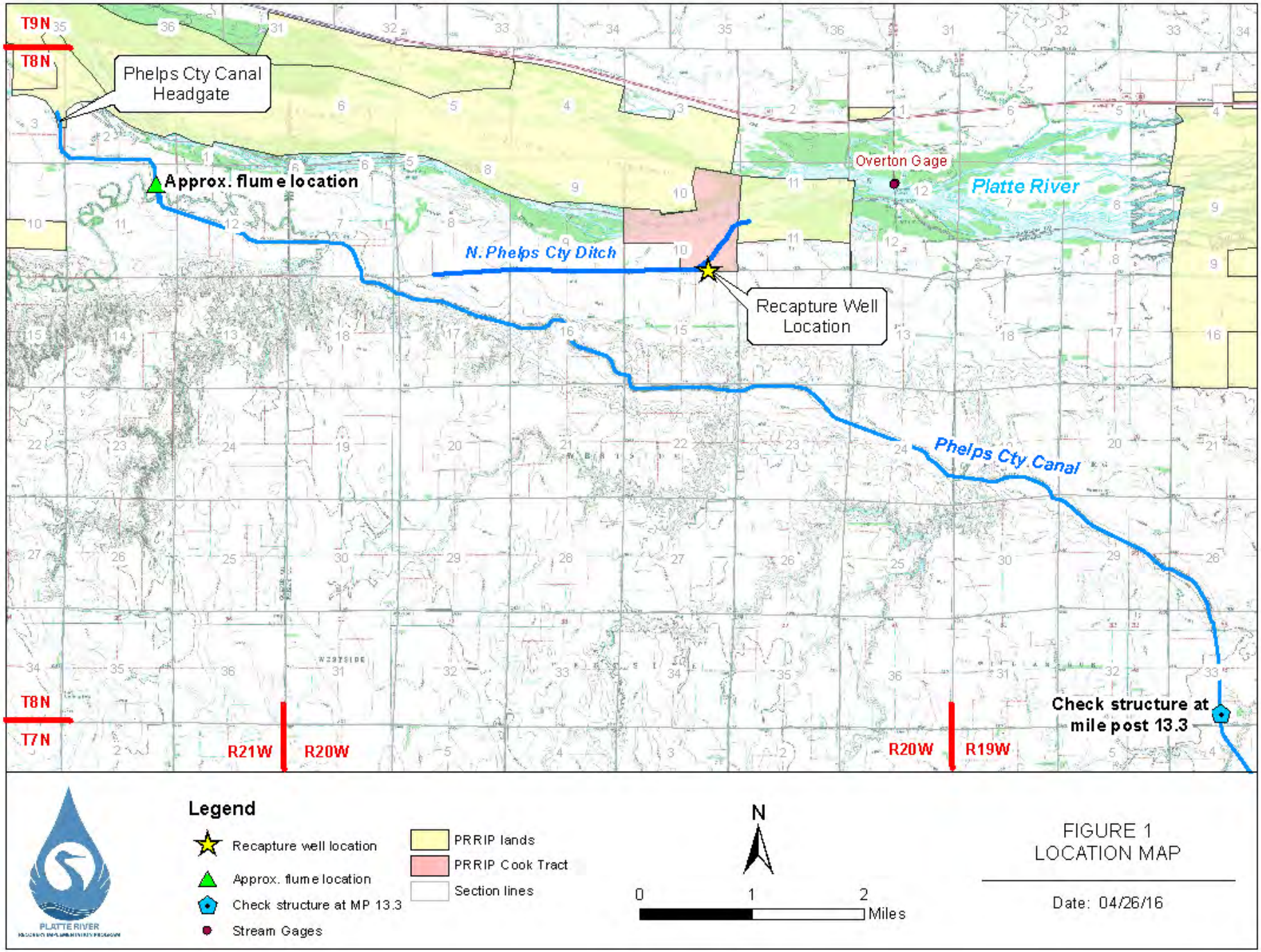
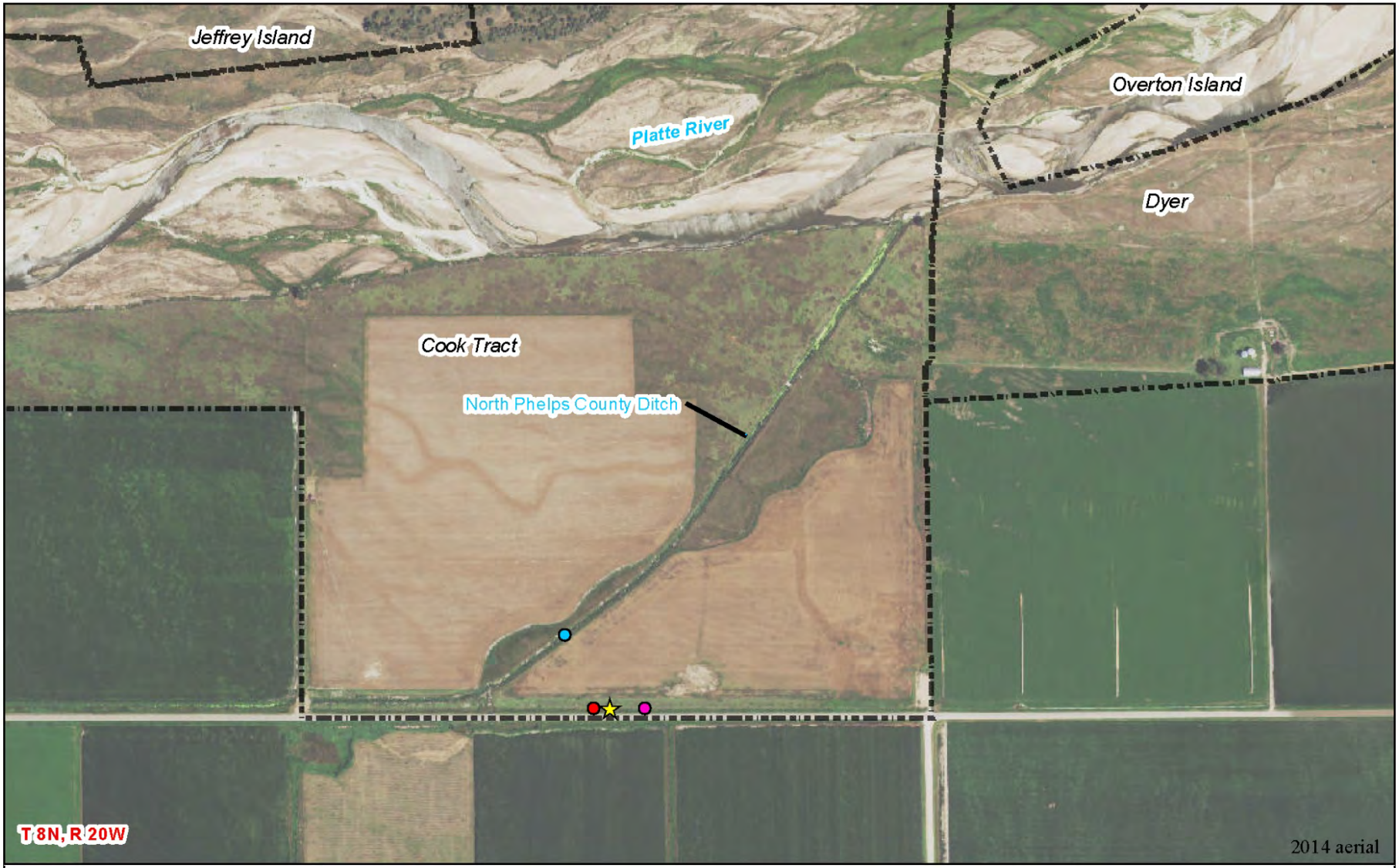


FIGURE 1
LOCATION MAP

Date: 04/26/16

Background

- Drain recorder (‘11)
- 2 monitoring wells (‘15)
- 1 recapture well (‘16)
  - Dissipation, pipe, elec



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Legend

- Recapture Well
- Monitoring Well A
- Monitoring Well B
- Drain Gage
- Program lands

N

0 600 1,200 Feet

FIGURE 2
VICINITY MAP

Date: 04/26/16

N Phelps Cty Drain (March 2016)

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Score Overview

- Retiming Phelps recharge accretions (Program's portion)
- Only pump during shortages to USFWS target flows
- Max rate: 800 gpm
- Pump to N Phelps Cty Drain → Platte

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Score Analysis

- Pumped volume (credit to river)
- Lagged impact at river (net from recharge/pumping) – numerical model
- Routed to Grand Island
- Credited to target flow shortages
- Net increase in score – recapture well (recharge alone vs. combined project)

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Total Recharge/Well Score

- **Scoring Subcommittee recommendation for well – 160 AFY**

- Phelps recharge score approved by GC at 1,800 AFY (50% interest)
- Revised score – 2,700 AFY (75% interest, per draft permanent agreement w/CNPPID)

- **Total score – 2,860 AFY**

Operation Plan – Pump On

- March 1 – November 30 &
- GI flows – 72 hours below target flows (similar to TBNRD) &
- Accretions from Phelps recharge

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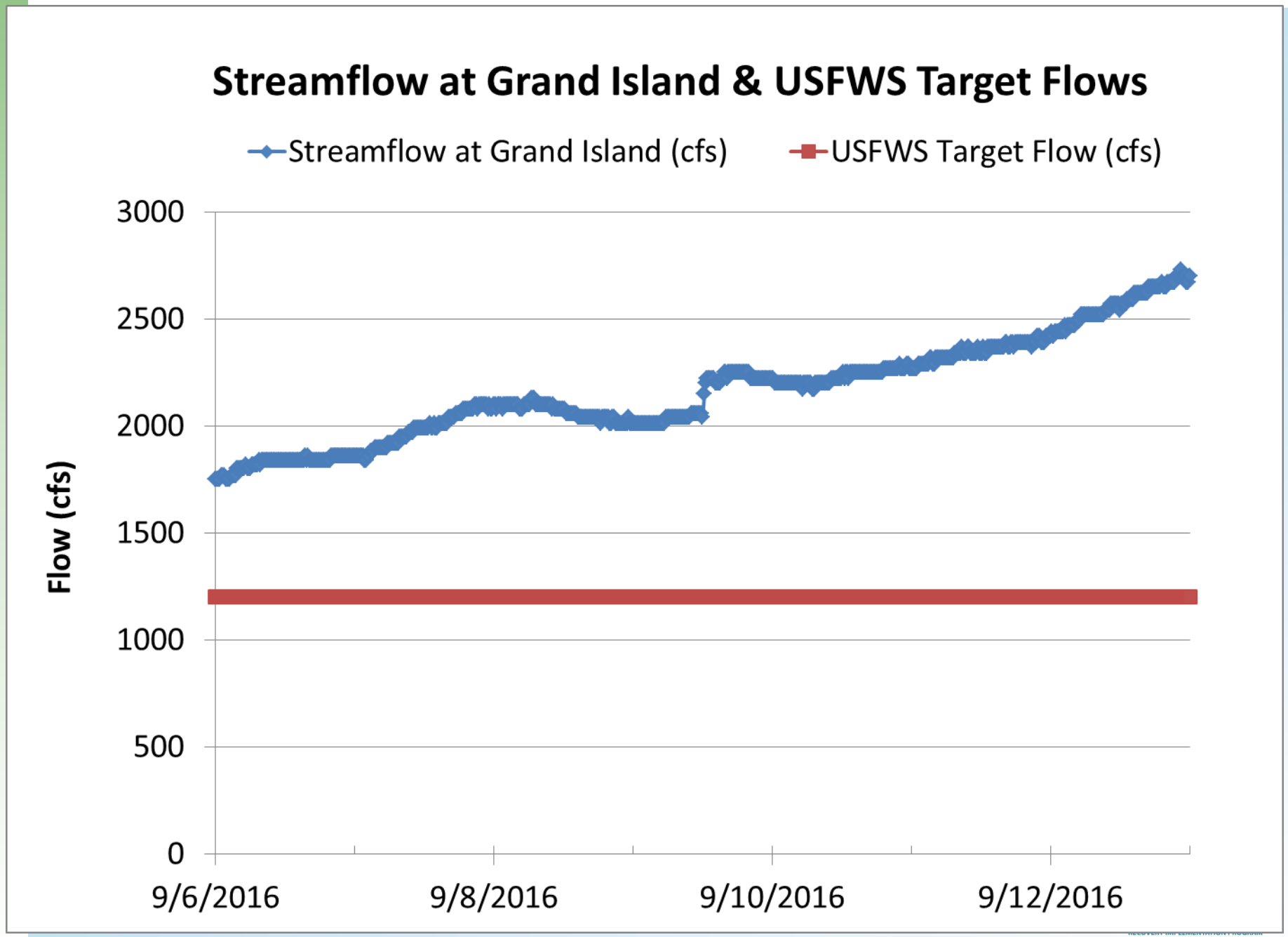
Streamflow at Grand Island & USFWS Target Flows
Streamflow at Grand Island (cfs)
USFWS Target Flow (cfs)
Flow (cfs)
3000
2500
2000
1500
1000
500
0
9/6/2016
9/8/2016
9/10/2016
9/12/2016

Operation Plan – Pump Off

- Off season, above targets, insufficient recharge accretions
- Possibility of damage/other issues (flooding, ice jams, equipment damage)
- Score no longer provided due to over-pumping/timing
- Drain ditch becomes dry in the vicinity during extended operations and/or groundwater temperatures rise significantly in well

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Accounting

- **Phelps recharge**
  - Measured deliveries from CNPPID (flume)
  - Include water from HG to flume
  - Lagged accretions at river (numerical model)

- **Cook recapture well pumping**
  - Volume pumped (measuring/recorder)
  - Impact from pumping (numerical model)

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Accounting

- **Net at the river**
  - Projected operation
    - No net depletion at the river
    - Pumping limit, curtail?
  - Actual operation (accounting)

- **TBNRD annual water report**

Year	Phelps County Canal Volume Recharged for Program (A)	Cook Well Volume Pumped to River (B)	Net Accretion at the River (C)
2007	0	0	0
2008	0	0	0
2011	3156	0	627
2012	1695	0	1466
2013	4649	0	2932
2014	1331	0	1885
2015	4097	0	2511
2016	2204	0	3195
2017	0	0	1356
2018	0	0	723
2019	0	0	416
Total	**17132**	**0**	**15110**

Month-Year	Actual Phelps County Canal Volume Recharged for Program (A)	*Projected* Cook Well Volume Pumped to River (B)	*Projected* Net Accretion at the River (C)
Jan-16	1203	0	375
Feb-16	465	0	328
Mar-16	536	0	366
Apr-16	0	0	308
May-16	0	0	292
Jun-16	0	0	263
Jul-16	0	0	254
Aug-16	0	110	309
Sep-16	0	106	266
Oct-16	0	110	245
Nov-16	0	106	209
Dec-16	0	0	121

Month-Year	Actual Phelps County Canal Volume Recharged for Program (A)	*Projected* Cook Well Volume Pumped to River (B)	*Projected* Net Accretion at the River (C)
Jan-17	0	0	129
Feb-17	0	0	117
Mar-17	0	0	125
Apr-17	0	0	116
May-17	0	0	113
Jun-17	0	0	105
Jul-17	0	0	104
Aug-17	0	110	177
Sep-17	0	106	149
Oct-17	0	110	135
Nov-17	0	106	116
Dec-17	0	0	30

Wrap Up

- Draft operation plan & accounting
- Adaptive management – able to track & make adjustments, as necessary
- Learn for other potential sites

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Questions?

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