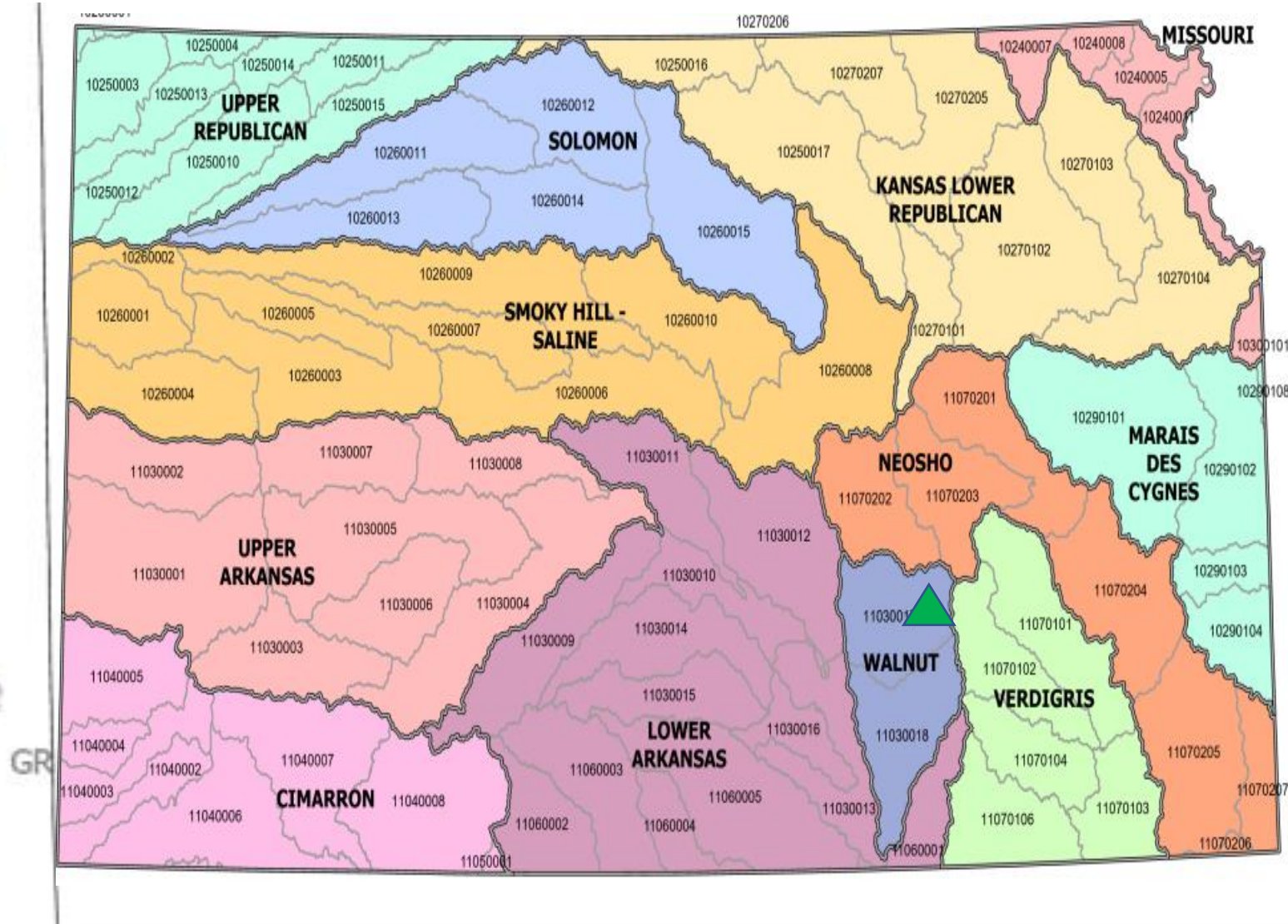




El Dorado, Kansas – POTW, MS4 & NPS ACWA Nutrient Permitting Workshop – May 3, 2023

Location and Surroundings at El Dorado



Predominantly Rural Landscape



Nutrient Reduction in Kansas

Kansas Nutrient Reduction Strategy (2004)

In lieu of setting numeric nutrient criteria for streams and reservoirs in Kansas;

- Implement technology controls for mechanical treatment plants
(BNR/ENR/LOT)
- Target BMPs to nonpoint sources of nutrients.
- Reduce nitrogen and phosphorus loads by 30%
- Use the TMDL process to set specific reduction goals and strategies



Nutrient Reduction in Kansas

Kansas Goal is to reduce Nitrogen and Phosphorus discharges to streams and reservoirs via TMDLs and technology-based WLAs

Concentration Goals (mechanical plants)

- Total Nitrogen – 10.0 mg/l – 12-mo rolling avg (sometimes 8 mg/l)
- Total Phosphorus – 1.0 mg/l – 12-mo rolling avg (sometimes 1.5 mg/l)

Mass-Based Limits (mechanical plants)

-Result of stream impairment and TMDL – WLA and/or antidegradation study. Permitted as 12-month rolling average mass loading (lbs/day)(8.34 x design flow in MGD x concentration)

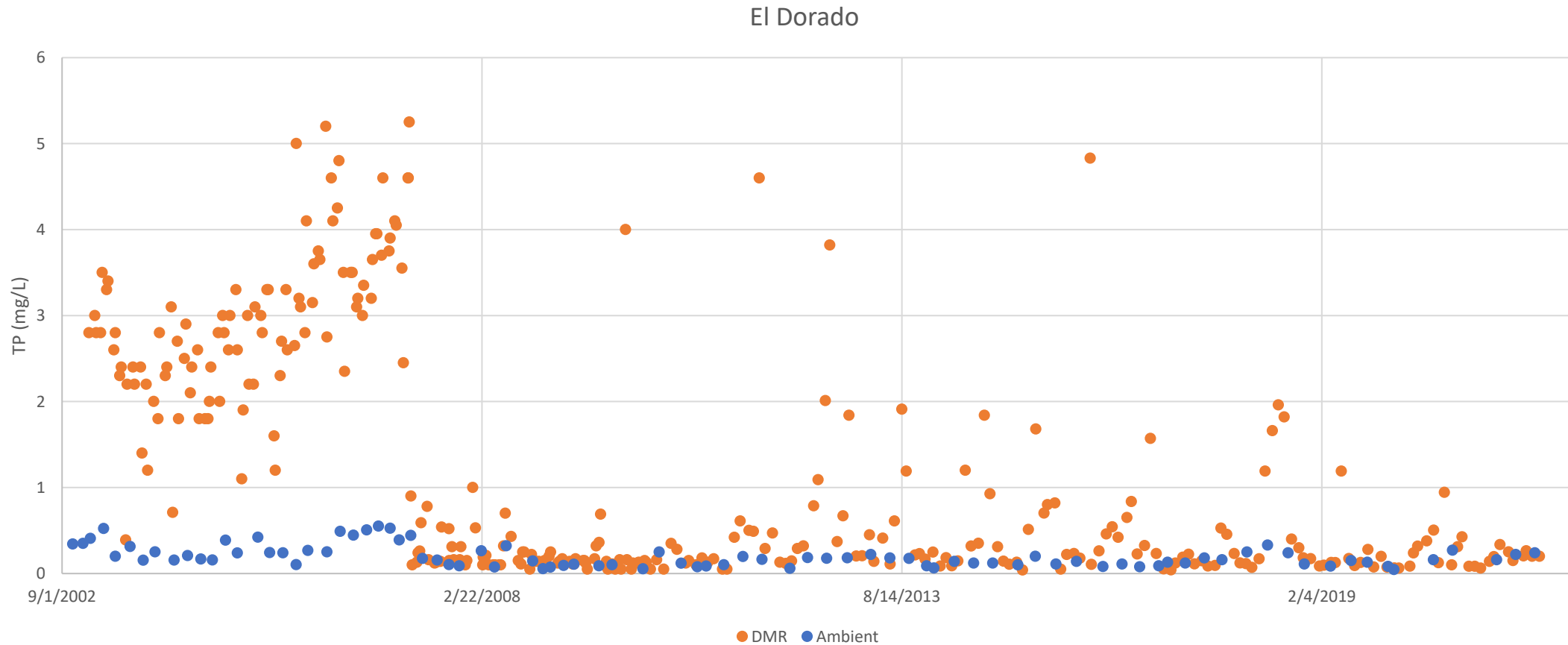
Kansas mechanical WWTF performances 2021

- 75 of 122 mechanical facilities are meeting TN, TP, or both nutrient concentration goals
 - 69 meeting TN
 - 29 meeting TP
 - 27 meeting both
- 3 facilities replaced old mechanical plants with non-discharging lagoons and 1 mechanical plant replaced with discharging lagoon

- Result of construction of BNR and optimization of existing WWTFs

Nutrient Reduction in Kansas[Outcome]

El Dorado and the Walnut River: Building Opportunities through Performance



Nutrient Reduction in Kansas

Opportunity: Inverted Water Quality Trading

- Traditionally WQT Involved Buying Credits from Farmers in lieu of WWTP Upgrades (Pt S to NPS)
- KDHE Never a Fan of Trading
 - Soft Targets, i.e., No Permit Concentration Limits
 - **Speculative Benefits, i.e., NPS Reductions Real?**
 - Different “Commodities” (Bioavailability)
 - **Regulatory Vulnerability**
- More Plant Optimization Opens Door to Reconsider

Nutrient Reduction in Kansas

Performance and Credit

- **Many Cities Have Invested in BNR Technology**
- **Some Cities Have Yet to Invest, But Improved Ops through Optimization**
- **Optimized Operations Reduced Nutrient Loads below BNR & Sometimes, ENR Levels**
- **Optimization Self-Generates Credits for City**
- **How to Reward Those Credits?**

Nutrient Reduction in Kansas

Reward and Reality

- **First, Reward with Time: Every Month of Optimized Output is a Month of Deferral Before the Next WWTP Upgrade in Future**
- **Next, Rethink Implementation of NPDES MS4 Permits for Water Quality from Practices and Points Inside City Limits to Out in the Rural Watershed**
- **Most Kansas MS4 Cities are Urban Islands in an Agriculture Sea**
- **Rural BMPs >>> Urban BMPs in Load Reduction Effectiveness**
- **Rural BMPs <<< Urban BMPs in Practice Cost to Implement**

Nutrient Reduction in Kansas

Spend Less, Bring Contributions, Gain More Buying Power

- **Optimized City Redirects Resources from Internal WQ Management by Stormwater Program to Watershed**
- **Match Those Resources with KDHE 319 Funds**
- **Leverage Those Pooled Funds with Private Sector Investment in Carbon Sequestration**
- **Carbon – Sediment – Nutrients: All Use the Same Practices**
- **No Till, Cover Crops, Soil Health Practices**
- **Results in Heavy Density of Practices Installed**

Nutrient Reduction in Kansas

Beneficial Outcomes for Facility and Environment

- **Real Benefits Realized**
 - **More Resources Directed at NPS; Greater BMP Saturation**
 - **Greater Regulatory Certainty on Future Limits at WWTP**
 - **MS4 Permits Become More Meaningful**
 - **Permits Rewritten to Customize and Simplify to City Program**
 - **Monitoring Requirements Replaced by Watershed Modeling**
 - **Points Accrue to TMDL, Construction and Post-Construction Elements**
 - **Greater Portion of Hydrograph Sees Nutrient Reduction**
 - **In Some Cases, Source Water Protection is Incorporated**

El Dorado Inverted WQ Trading

City and KDHE signed MOU outlining arrangement

BEFS-WMS have grant agreement with city, matching up to \$50K per year for three years with 319 funds

City and Soil and Water Outcomes have signed agreement to begin to recruit ag producers above El Dorado Lake to put in carbon and wq practices

Soil and Water Outcomes will provide monitoring and modeling

KDHE revised El Dorado MS4 permit to right size it to actual practices used, off site implementation and relief from monitoring

New MS4 Permit for El Dorado

- Issued on 2/1/2023 after public notice
- City and KDHE entered into an MOU
 - Established a framework of participation by the City and KDHE to invest in nutrient and sediment reduction practices above El Dorado Lake and along Walnut River in Butler Co., KS
 - Framework accomplishes the following:
 1. Credits the City for its treatment performance reducing N and P in its future WW NDPES permits
 2. Produces a revenue stream from the City (leveraged with EPA 319 and potential private-sector funds) that can be applied for the installation of BMPs to reduce NPS contributions to downstream

New MS4 Permit for El Dorado

- Reduced Permit from 67 pages to 35 pages
- Major Highlights include:
 - Revamp of permit to include “inverted WQ trading”
 - Establishment of an “Alternative Stormwater Offsite Pollution Reduction Program”
 - Monitoring and modeling of Load Reductions done by 3rd party for permittee
 - Reductions lead to permit points to meet annual quota of activity
 - Tracking of points generated by offsite program reported by permittee to KDHE annually
- Established a “template” that may be utilized for others wanting to move forward with similar approach

Thank You!

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