

**Summary of Watershed Plan – Environmental Impact Statement
for
Rattlesnake Creek Watershed**

Stafford County, Kansas
First Congressional District

Authorization: Watershed Protection and Flood Prevention Act, Public Law (PL) 83-566, as amended (16 USC 1001-1008); NEPA, Section 102(2)(c) of the National Environmental Policy Act (NEPA) of 1969, Public Law 91-190, as amended (42 U.S.C. 4321 et seq.).

Sponsor: Big Bend Groundwater Management District #5 (GMD #5)

Proposed Action: The proposed action consists of construction of an augmentation wellfield and implementation of a water right retirement program. In addition, the proposed project includes implementation of a multistakeholder adaptive management approach that would evaluate the success of the wellfield and water right retirements on an annual basis.

Purpose and Need for Action: Within the PL 83-566 authorization, the purpose of the Rattlesnake Creek Watershed Plan Environmental Impact Statement (Plan – EIS) is to provide for long-term, sustainable agricultural water management within the Rattlesnake Creek subbasin of GMD #5. The need for developing the Plan – EIS is twofold: Quivira National Wildlife Refuge (NWR) water supply needs and the importance of groundwater to the agricultural economy.

Description of the Proposed Action Alternative: The Proposed Action Alternative consists of construction of an augmentation wellfield that will provide 15-18 cubic feet per second (cfs) of water to Rattlesnake Creek upstream of Quivira NWR. Additionally, 2,500 acre-feet of water rights would be retired, and an adaptive management strategy (developed following the NEPA process) would be used to adjust augmentation and/or water right retirements as needed.

Resource Information:

Latitude and longitude: 38.086088° -98.509466°

Eight-digit hydrologic unit code (HUC) number: 11030009, 11030010, 11030014

Climate and topography: The average annual rainfall is 28.57 inches, and the average annual temperature is 57.45 degrees Fahrenheit. The proposed project is in the Arkansas River Lowlands and High Plains regions. Both regions are generally flat to rolling with gentle slopes and sand dunes present periodically.

Watershed size: Rattlesnake Creek Subbasin is approximately 796,709 acres.

Land uses (acres) within project area: According to the National Land Cover Database (NLCD), farmed cropland covers a total of 448,494 acres of land within the project area (63 percent). Herbaceous and hay and pasture cover types, including grasslands, forbs, and hayed or grazed pasture, comprise 214,529 acres of land (30 percent). Developed land accounts for approximately 28,973 (4 percent), and woody wetlands, emergent herbaceous wetlands, and open water

account for 23,663 acres (3 percent). Approximately 1,567 acres (less than 1 percent) of deciduous/mixed forest, barren land, and scrub/shrub lie within the project area.

Land ownership: Private (97.1 percent), State/Local (0.2 percent) Federal (2.7 percent)

Population and demographics: Populations include 17 percent who identify as minority or nonwhite. Notable, the population of Macksville is 38.2 percent minority or nonwhite. Three communities have a higher poverty rate (percentage of people living below the federal poverty level) than the state poverty rate: Hudson (13.3 percent), St. John (12.5 percent), and Belpre (32.7 percent).

Threatened and Endangered Species: Four federally endangered species (northern long-eared bat [*Myotis septentrionalis*], Eskimo curlew [*Numenius borealis*], whooping crane [*Grus americana*], and peppered chub [*Macrhybopsis tetranema*]); four federally threatened species (eastern black rail [*Laterallus jamaicensis ssp. Jamaicensis*], lesser prairie-chicken [*Tympanuchus pallidicinctus*], piping plover [*Charadrius melodus*], and red knot [*Calidris canutus rufa*]); two proposed threatened species (monarch butterfly [*Danaus plexippus*] and western regal fritillary [*Argynnis idalia occidentalis*]); one proposed endangered species (tricolored bat [*Perimyotis subflavus*]); three federal candidate species (little brown bat [*Myotis lucifugus*], , American bumble bee [*Bombus pensylvanicus*], and southern plains bumble bee [*Bombus fraternus*]); one federally petitioned species (Iowa skipper [*Atrytone arogos iowa*]), and one species identified for discretionary review (hoary bat [*Lasiurus cinereus*]) were identified for analysis.

Wetlands and Streams: There are a total of approximately 53,425 acres of wetlands and approximately 558 miles of perennial streams and 2,647 miles of intermittent and ephemeral streams within the Rattlesnake Creek, Gar-Peace Creek, and North Fork Ninnescah River watersheds. Specifically, Rattlesnake Creek Watershed includes approximately 21,045 acres of wetlands, 140 miles of perennial streams, and 838 miles of intermittent and ephemeral streams.

Other Alternative Plans Considered:

No Action Alternative: Junior water rights curtailment within Zone B would be completed initially and then the Kansas Department of Agriculture-Division of Water Resources (KDA-DWR) would annually evaluate the effectiveness in securing the U.S. Fish and Wildlife Service's (USFWS's) water right. The junior water rights curtailment would result in all water rights within Zone B that are junior to Water Right File Number 7,571 to cease groundwater pumping. Adjustments in the level of regulation would occur based on the annual evaluation.

Groundwater Use Reduction Alternative: Groundwater use in Zone A, which is a larger area than Zone B, would be modified to reduce water use from a larger number

of water rights. This will avoid complete curtailment from any one water right holder by spreading reductions in water use over a larger area. However, because the Rattlesnake Creek response from Zone A is 10 percent versus 20 percent in Zone B, an increased reduction in water use is required compared to the No Action Alternative.

Proposed Project Costs (Compact Wellfield Configuration).

Compact Wellfield Configuration	Public Law (PL) 83-566 Funds: 75%	Other Funds: 25%	Total: 100%
Engineering/Technical Assistance	\$1,936,000	\$0	\$1,936,000
Construction	\$20,335,000	\$6,778,000	\$27,113,000
Project Administration	\$645,000	\$212,000	\$857,000
Real Property Rights	\$0	\$558,000	\$558,000
Permits	\$0	\$150,000	\$150,000
Relocation	\$0	\$0	\$0
Water Right Retirements	\$8,440,000	\$2,813,000	\$11,253,000
Interest for Water Right Retirements	\$232,000	\$77,000	\$309,000
Interest for Engineering, Construction and Project Administration Costs	\$1,736,000	\$553,000	\$2,289,000
Total	\$33,324,000	\$11,141,000	\$44,465,000

Proposed Project Costs (Expanded Wellfield Configuration).

Expanded Wellfield Configuration	Public Law (PL) 83-566 Funds: 75%	Other Funds: 25%	Total: 100%
Engineering/Technical Assistance	\$2,958,000	\$0	\$2,958,000
Construction	\$31,285,000	\$10,428,000	\$41,713,000
Project Administration	\$893,000	\$289,000	\$1,182,000
Real Property Rights	\$0	\$614,000	\$614,000
Permits	\$0	\$150,000	\$150,000
Relocation	\$0	\$0	\$0
Water Right Retirements	\$8,440,000	\$2,813,000	\$11,253,000
Interest for Water Right Retirements	\$232,000	\$77,000	\$309,000
Interest for Engineering, Construction and Project Administration Costs	\$2,659,000	\$820,000	\$3,479,000
Total	\$46,467,000	\$15,191,000	\$61,658,000

Proposed Project Benefits:

Estimated Average Annual Watershed Protection Damage Reduction Benefits.

Item	Damage Reduction Benefit, Average Annual ¹
On-site	
Maintaining Productivity	\$4,499,000
Groundwater Retirements ²	\$0
Subtotal	\$4,499,000
Off-site/Public	\$0
Total	\$4,499,000

¹Price Base: 2023

²Benefits of groundwater retirements are included with maintaining productivity.

Comparison of National Economic Development (NED) Benefits and Costs; Rattlesnake Creek Watershed, Kansas (dollars¹).

Works of Improvement	Agricultural-Related	Average Annual Benefits	Average Annual Costs	Benefit-cost Ratio
Compact Configuration	Maintain Productivity	\$4,499,000	\$2,342,000	1.92
Expanded Configuration	Maintain Productivity	\$4,499,000	\$2,885,000	1.56

¹Price Base: 2023

Number of direct beneficiaries (On-site – Off-site): 876 water right holders

Other beneficial effects in physical terms: Providing long-term agricultural water management for the region would help provide water resources for the agricultural economy and help meaningfully address Quivira NWR’s impaired senior water right. Implementation of the project will result in streamflow increases to downstream Rattlesnake Creek and Quivira NWR.

Benefit to cost ratio (2.75 percent discount rate):

- Compact Configuration – 1.92
- Expanded Configuration – 1.56

Annual Average Net beneficial effects (NED):

- Compact Configuration – \$2,157,000
- Expanded Configuration – \$1,615,000

Funding schedule (budget year plus 5):
Compact Wellfield Configuration:

Year	Funds	Water Right Retirements	Interest on Water Rights Retirements ¹	Engineering/ Technical Assistance	Project Admin	Construction	Real Property Rights	Permits	Interest for Engineering, Construction and Admin Costs ¹	Total
1	PL 83-566	\$1,688,000	\$46,400	\$968,000	\$129,000				\$159,000	\$2,990,400
1	Other	\$562,600	\$15,400		\$42,400			\$75,000	\$17,000	\$712,400
2	PL 83-566	\$1,688,000	\$46,400	\$968,000	\$129,000				\$126,000	\$2,957,400
2	Other	\$562,600	\$15,400		\$42,400			\$75,000	\$13,000	\$708,400
3	PL 83-566	\$1,688,000	\$46,400		\$129,000	\$10,167,500			\$873,000	\$12,903,900
3	Other	\$562,600	\$15,400		\$42,400	\$3,389,000	\$279,000		\$315,000	\$4,603,400
4	PL 83-566	\$1,688,000	\$46,400		\$129,000	\$10,167,500			\$574,000	\$12,604,900
4	Other	\$562,600	\$15,400		\$42,400	\$3,389,000	\$279,000		\$207,000	\$4,495,400
5	PL 83-566	\$1,688,000	\$46,400		\$129,000				\$4,000	\$1,867,400
5	Other	\$562,600	\$15,400		\$42,400				\$1,000	\$621,400
	TOTAL	\$11,253,000	\$309,000	\$1,936,000	\$857,000	\$27,113,000	\$558,000	\$150,000	\$2,289,000	\$44,465,000

¹ Calculated using a 2.75 percent discount rate.

Expanded Wellfield Configuration

Year	Funds	Water Right Retirements	Interest on Water Rights Retirements ¹	Engineering/ Technical Assistance	Project Admin	Construction	Real Property Rights	Permits	Interest for Engineering, Construction and Admin Costs ¹	Total
1	PL 83-566	\$1,688,000	\$46,400	\$1,479,000	\$178,600				\$241,000	\$3,633,000
1	Other	\$562,600	\$15,400		\$57,800			\$75,000	\$19,000	\$729,800
2	PL 83-566	\$1,688,000	\$46,400	\$1,479,000	\$178,600				\$190,000	\$3,582,000
2	Other	\$562,600	\$15,400		\$57,800			\$75,000	\$15,000	\$725,800
3	PL 83-566	\$1,688,000	\$46,400		\$178,600	\$15,642,500			\$1,341,000	\$18,896,500
3	Other	\$562,600	\$15,400		\$57,800	\$5,214,000	\$307,000		\$473,000	\$6,629,800
4	PL 83-566	\$1,688,000	\$46,400		\$178,600	\$15,642,500			\$882,000	\$18,437,500
4	Other	\$562,600	\$15,400		\$57,800	\$5,214,000	\$307,000		\$311,000	\$6,467,800
5	PL 83-566	\$1,688,000	\$46,400		\$178,600				\$5,000	\$1,918,000
5	Other	\$562,600	\$15,400		\$57,800				\$2,000	\$637,800
	TOTAL	\$11,253,000	\$309,000	\$2,958,000	\$1,182,000	\$41,713,000	\$614,000	\$150,000	\$3,479,000	\$61,658,000

¹ Calculated using a 2.75 percent discount rate.

Federal funds:

- Compact Configuration – \$33,324,000
- Expanded Configuration – \$46,467,000

Nonfederal funds:

- Compact Configuration – \$11,141,000
- Expanded Configuration – \$15,191,000

Period of Analysis: 50 years

Proposed Project Life: The proposed project life is planned for 50 years.

Environmental Effects, Impacts: These include changes in hydrology that provide beneficial impacts to wetlands and wildlife at the Quivira NWR. Negative impacts would occur as a result of aquifer impacts that would reduce available water in areas around the augmentation wellfield and downstream in the Gar-Peace Creek and North Fork Ninnescah River watersheds. Effects to the human environment would include a reduction in irrigated acres that support the regional economy, but to a lesser degree than the No Action and Groundwater Use Reduction alternatives. Hydrology benefits realized with the No Action Alternative may not be present with the proposed alternative.

Major Conclusions: The proposed project provides water to Quivira NWR to support management activities and its established water right while minimizing the economic impacts on the region.

Areas of Controversy and Issues to be Resolved: The USFWS holds Water Right File Number 7,571 for the management of Quivira NWR. This water right, which is senior in priority to approximately 95 percent of all other water rights in the Rattlesnake Creek subbasin, has been impaired frequently over the past 25 years as determined by the Kansas Department of Agriculture (KDA) Chief Engineer.

Evidence of Unusual Congressional or Local Interest: On August 29, 2018, U.S. Senators Pat Roberts and Jerry Moran and members of Congress Ron Estes and Roger Marshall sent a letter to USFWS requesting technical assistance with the augmentation engineering. Additionally, Audubon of Kansas has expressed interest and has participated in legal proceedings.

Is this report in compliance with executive orders, public laws, and other statutes governing the formulation of water resource projects? Yes No