USDA U.S. DEPARTMENT OF AGRICULTURE

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Rattlesnake Creek Watershed Plan Environmental Impact Statement and Record of Decision

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Lead Agency: Natural Resources Conservation Service

Cooperating Agencies: U.S. Army Corps of Engineers; U.S. Fish and Wildlife Service; U.S. Environmental Protection Agency; Kansas Department of Health and Environment; and Kansas Department of Agriculture

States, Counties, and Other Jurisdictions: Stafford County, Kansas; Big Bend Groundwater Management District #5

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PROPOSAL INFORMATION

General Information

Proposal Name: Watershed Plan – Environmental Impact Statement for Rattlesnake Creek Watershed

Proposal Tracking #: EISX-005-53-020-1379696002

Proposal Initiation Date: 12/28/2023

Proponent Name: Big Bend Groundwater Management District #5 (GMD #5)

Signing Authority: NRCS State Conservationist

Responsible Official: Chad G. Volkman

Unit: NRCS Kansas State Office

Anticipated Implementation of Proposal: Summer 2026

Proposal Record Location: https://www.nrcs.usda.gov/state-offices/kansas/rattlesnake-creek-watershed

GIS Info: https://www.nrcs.usda.gov/state-offices/kansas/rattlesnake-creek-watershed

Proposal Webpage: https://www.nrcs.usda.gov/state-offices/kansas/rattlesnake-creek-watershed

General Location of Proposal: Stafford County, Kansas

Purpose and Need: Why is action needed?

Providing long-term agricultural water management for the region would improve water resources for the agricultural economy and meaningfully address Quivira NWR's impaired senior water right as described in KDA-DWR's 2016 impairment report. 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.

No Action: What happens if no action is taken?

USFWS filing a request to secure water is the predictable action that would occur in the absence of a federally funded PL 83-566 authorized project. KDA-DWR would then administer the water right consistent with K.S.A. 82a-706b. Developing a plan for water rights administration is a dynamic and constantly evolving process. The No Action Alternative for the Rattlesnake Creek Plan-EIS involves junior water rights curtailment within Zone B that 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. Additional information about the No Action Alternative can be found in Section 5.2 of the Plan-EIS.

Proposed Action: What are we proposing to do?

Augmentation Wellfield & Groundwater Use Reduction Alternative: 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. The augmentation wellfield 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 (further developed following the NEPA process) would be used to adjust augmentation and/or water right retirements as needed. The proposed action will meet all screening criteria for the purpose and need, which includes Quivira NWR water supply, long-term agricultural water management, and sustainable water use and water sources. Additional information about the Proposed Action can be found in Section 5.3 and in Chapter 8 of the Plan-EIS.

Alternatives to the Proposed Action: Are there other ways to meet the purpose and need?

One additional action alternative and the No Action Alternative were described as additional alternatives to the Augmentation Wellfield & Groundwater Use Reduction Alternative - Proposed Action Alternative, (described above). The Groundwater Use Reduction Alternative (additional action alternative) and No Action Alternative are described below. Please see the table below (Plan EIS - Table 8.1) for a comparison of alternative actions and resulting effects.

No Action Alternative: If no federal action occurs, then the most likely future path as determined by Kansas Department of Agriculture-Division of Water Resources (KDA-DWR) would include junior water rights curtailment within Zone B. KDA-DWR would be complete the curtailment initially and then 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. Additional information about the No Action Alternative can be found in Section 5.2 of the Plan-EIS.

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. Additional information about the Groundwater Use Reduction Alternative can be found in Section 5.4 of the Plan-EIS.

Table 1: Alternative Actions and Resulting Effects (Plan – EIS: Table 8.1)

Actions and Effects	No Action Alternative	Augmentation Wellfield and Groundwater Use Reduction Alternative	Groundwater Use Reduction Alternative
Actions ***Reference: Plan – EIS Section 5.0 Alternatives***	Curtailment of junior water rights within Zone B (areas with a 20 percent or greater streamflow impact). Annual evaluation to determine effectiveness and make adjustments.	Augmentation wellfield that provides 15-18 cubic feet per second (cfs) to Rattlesnake Creek. Retirement of 2,500 acre-feet per year (AFY) of authorized water use. Adaptive management program to evaluate success of alternative.	Reduce groundwater use 60 percent from historical pumping in Zone A (Local Enhanced Management Area [LEMA]/ Intensive Groundwater Use Control Area [IGUCA]).
Rattlesnake Creek Stream Depletion ***Reference: Plan – EIS Section 6.9 Surface Water Resources and Water Quality***	Reverses depletion trends.	Continued depletion upstream of Zenith Gage; average rate of depletion downstream (not including augmentation inputs) is 130-170 AFY depending on wellfield configuration.	Reverses depletion trends.
Rattlesnake Creek Streamflow Increases (cfs) ***Reference: Plan – EIS Section 6.9 Surface Water Resources and Water Quality***	Increase in baseflow by approximately 10 cfs within two years; average of 32.3 cfs over 53-year simulation period.	Downstream only, 15-18 cfs added to streamflow because of augmentation groundwater pumping. The 2,500 AFY of water right retirements are anticipated to stop or slow continued depletions.	Increase in baseflow similar to the No Action Alternative, except the increases will be over a longer time period.
Rattlesnake Creek Streamflow Increases (AFY) ***Reference: Plan – EIS Section 6.9 Surface Water Resources and Water Quality***	Within approximately two years, 7,200 AFY; average increase in baseflow by 23,400 AFY over 53-year simulation period.	Downstream only, augmentation groundwater pumping expected to supply 5,580 AFY.	Average increase in baseflow of 18,800 AFY over the 53-year simulation period.

Actions and Effects	No Action Alternative	Augmentation Wellfield and Groundwater Use Reduction Alternative	Groundwater Use Reduction Alternative
Water Quality ***Reference: Plan – EIS Section 6.9 Surface Water Resources and Water Quality***	Improved because of decline in irrigated farming, less groundwater pumping, and less fertilizer and chemical usage.	Improvements resulting from the No Action Alternative would not be realized. Water provided to Rattlesnake Creek and Quivira NWR would be different than current water quality. Salt content would be maintained as a result of mixing of natural flows with augmentation water and consistent with Kansas Department of Health and Environment (KDHE) guidance.	Improved because of decline in irrigated farming, less groundwater pumping, and less fertilizer and chemical usage.
Groundwater Levels ***Reference: Plan – EIS Section 6.2 Aquifers and Sole Source Aquifer***	Varies depending on proximity to stream and past pumping. Average increase of approximately 1 inch per year across Zone B.	Lowering of groundwater levels in the vicinity of the wellfield between 5 and 10 feet over the 50-year project life. Other areas in the watershed would see 0.5- to 2-foot declines over 50 years.	Varies depending on proximity to stream and past pumping. Average increase of approximately 1 inch per year across Zone A.
Aquifer Storage (AFY) ***Reference: Plan – EIS Section 6.2 Aquifers and Sole Source Aquifer***	Average increase in aquifer storage of 32,400 AFY over the 53-year simulation period.	Predicted reduction in aquifer storage ranges from 950-980 AFY, depending on the wellfield configuration.	Average increase in aquifer storage of 46,400 AFY over the 53-year simulation period.
Riparian Areas ***Reference: Plan – EIS Section 6.11 Riparian Areas***	No direct construction impacts. Benefit to existing approximately 5,500 acres of riparian areas in Zone B because of increase in groundwater levels.	Direct construction impacts (2.9 acres). Impact to riparian areas by decreasing groundwater levels in the vicinity of the wellfield. Benefit to riparian areas downstream of the augmentation delivery point although to a lesser extent than the No Action Alternative. Indirect negative impacts to riparian areas upstream of the Rattlesnake Creek delivery point and in the Gar-Peace Creek and North Fork Ninnescah River watersheds.	No direct construction impacts. Benefit to existing approximately 9,500 acres of riparian areas in Zone A because of increase in groundwater levels.

Actions and Effects	No Action Alternative	Augmentation Wellfield and Groundwater Use Reduction Alternative	Groundwater Use Reduction Alternative
Economics ***Reference: Section 6.5 Socioeconomics***	Net farm income under the No Action Alternative could decrease on average $5.0 million, annually, as compared to existing conditions.	Net farm income under the Augmentation Wellfield and Groundwater Use Reduction Alternative would increase on average by $4.9 million, annually, relative to the No Action Alternative.	Net farm income would decrease on average $1.4 million, annually, relative to the No Action Alternative.

Alternatives Considered but Not Analyzed in Detail

There were two alternatives considered but eliminated from detailed study. First, capture and recirculation of water leaving the Quivira NWR. Rattlesnake Creek has shown regular periods of low flow or no flow and during these periods cannot supply adequate water to Quivira NWR to meet its management goals and objectives through capture and recirculation. These periods provide insufficient water to the wetland complex during critical periods (i.e., spring and fall migration; KDA-DWR 2016). Second, conservation of water at Quivira NWR. Conservation measures would include making use of the existing water resources to reduce the need for additional water from Rattlesnake Creek. Conservation measures could include increasing water storage when water is available and diverting less water when water is scarce. These alternatives were eliminated due to not meeting the screening criteria A-C (A: Quivira NWR water supply, B: long-term agricultural water management, C: sustainable water use and water sources). Additional details can be found in Chapter 5 of the Plan-EIS.

INTERDISCIPLINARY PROPOSAL SCREENING

Given the nature of the proposal, the responsible official is requesting documentation to demonstrate compliance with the following legal and regulatory considerations in addition to NEPA:

☒ Endangered Species Act (ESA)

☒ National Historic Preservation Act (NHPA)

☒ Tribal Consultation (EO 13175)

☒ Clean Air Act (CAA)

☒ Clean Water Act (CWA)

☒ Pertinent Executive Orders

Special Management Areas:

☐ Coastal Zone Management Areas

☐ Conservation Easements

☐ Coral Reefs

☐ Inventoried Roadless

☒ Marine Sanctuaries

☐ National Recreation Areas

☐ National Scenic & Historic Trails

☐ Research or Experimental Areas

☐ Wild & Scenic River Corridors

☐ Wilderness

☒ Other: National Wildlife Refuge (NWR)

Scope of Analysis

The following describes how the agency drew a reasonable and manageable line relating to its consideration of environmental effects from the proposed action and action alternatives that extend outside the geographical territory of the proposal or might materialize later in time.

The geographic scope of analysis varies by resource as appropriate and can include a multicounty region encompassing the appropriate streamflow response region or can be limited to the alternatives' footprint within the project area (Figure 1) depending on available data and the potential extent of an alternative's impacts. Chapter 4 (Affected Environment) in the Plan – EIS details the geographic scope of analysis for each resource considered relevant. Relevant resources analyzed for the Plan – EIS are summarized in the substantive issues identified for analysis section below and in Chapter 3 in the Plan-EIS.

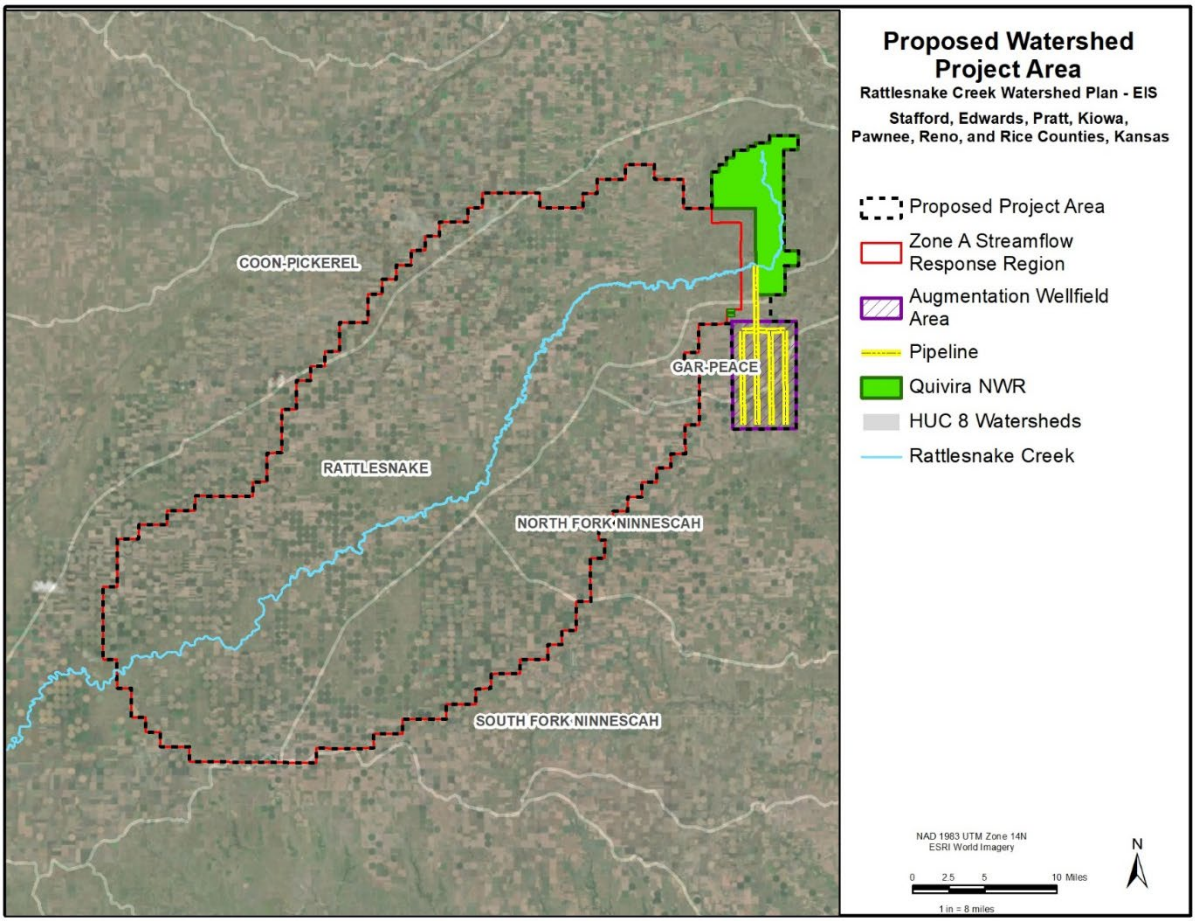

Figure 1. Watershed Plan Environmental Impact Statement (Plan – EIS) Project Area (Plan-EIS: Figure 3).

Agencies and Persons Consulted

Given the nature of the proposal, the responsible official consulted the following agencies, organizations, tribes, and persons during development and analysis of the proposal:

Agencies

U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, U.S. Environmental Protection Agency, Kansas Department of Health and Environment, Kansas Department of Agriculture, Kansas Department of Wildlife and Parks, Kansas Geological Survey, Kansas Water Office, Kansas State Historical Society

Native American Tribes

Osage Nation of Oklahoma, Wichita and Affiliated Tribes, Kiowa Tribe of Oklahoma, Prairie Band Potawatomi Nation, and Cheyenne and Arapaho Tribes of Oklahoma

Table 2: Applicable proposal record documentation to support agencies/persons consulted

Documentation Type	File Name (if applicable/needed)
Agency and Tribal Correspondence	Appendix A

Substantive Issues Considered for Analysis

Resources identified as relevant to the project are investigated in further detail within the Plan-EIS in Chapter 4 (Affected Environment) and Chapter 6 (Environmental Consequences). The table below presents relevant resources with accompanying rationale (amended from Table 3.0-2 in the Plan-EIS).

Table 3: Relevant Resources with Accompanying Rationale

Item	Relevant	Not Relevant	Rationale
Prime and Unique Farmland, and Farmland of Statewide or Local Importance	X		Approximately 97 percent of land within the project area is farmed, and 37 percent of farmed areas are classified by the Natural Resources Conservation Service (NRCS) as prime farmland. Conversion of farmland to nonagricultural uses could occur in portions of the project area where permanent disturbance or infrastructure may occur.
Soil Resources and Geology	X		Ground disturbance activities have the potential to disturb existing soils in the project area. Existing surficial and bedrock geology in the project area contributes to soil formation, groundwater movement, and groundwater availability.
Aquifers and Sole Source Aquifers (SSA)	X		The project area is within the Great Bend Prairie and Equus Beds components of the High Plains Aquifer. Most artificial withdrawal from the High Plains Aquifer occurs from groundwater wells used for irrigation, which can alter streamflows in areas with shallow depths to water table. According to the Environmental Protection Agency (EPA) map of SSAs, the High Plains Aquifer is not an SSA.
Surface Water Quality	X		Watersheds within the project contain impaired or potentially impaired waters listed under Section 303(d) by the Kansas Department of Health and Environment (KDHE) and approved by the Environmental Protection Agency (EPA). The primary water quality concern related to the project area is the prevalence and concentration of chlorides in surface waters.

Item	Relevant	Not Relevant	Rationale
Surface Water Resources	X		Numerous streams, wetlands, and other surface waters are present within the project area based on the U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) and U.S. Geological Survey (USGS) National Hydrography Dataset (NHD). Surface water resources within the project area are evaluated under Waters of the U.S. (WOTUS), wetlands, and special aquatic sites.
Water Rights	X		Kansas water law provides protections for senior water right holders from being impaired by junior water right users, according to priority date. The USFWS holds Water Right File Number 7,571, which was filed on August 15, 1957, and approved in 1963, for the management of Quivira National Wildlife Refuge (NWR). This water right is senior to approximately 95 percent of all water rights in the Rattlesnake Creek subbasin. In 2013, USFWS filed a water impairment claim that asserted agricultural irrigation infringed on its senior water right. The impairment has not yet been resolved.
Regional Water Management Plans	X		The project area is within Groundwater Management District #5 (GMD #5) and the Great Bend Prairie Regional Planning Area. GMD #5 is the proposed local sponsor associated with the project.
WOTUS, Wetlands, and Special Aquatic Sites	X		Wetlands, streams, and other WOTUS are present within the project area based on desktop resources including the USFWS National Wetland Inventory (NWI) and USGS NHD.
Endangered and Threatened Species	X		The project area is within the known range of several species listed as threatened or endangered under the Endangered Species Act (ESA), species listed as threatened or endangered under the Kansas Nongame and Endangered Species Conservation Act, and special status (federally proposed, candidate, discretionary listed) species.
Invasive Species	X		Invasive species, primarily invasive plant species, are known to occur within the project area and adjacent areas. Soil disturbance during construction activities could inadvertently facilitate the introduction or spread of invasive species.
Riparian Areas	X		Riparian areas (both forested and nonforested) are present within the project area based on land cover and NHD data. These areas are sensitive to changes in streamflow and groundwater levels.

Item	Relevant	Not Relevant	Rationale
Fish and Wildlife Resources (including coordination requirements)	X		There are no recreational fisheries within the project area; however, there are various fish and wildlife species present throughout the project area and associated watersheds, including at Quivira NWR.
Ecologically Critical Areas	X		Quivira NWR is within the project area and provides habitat for migratory and resident bird species in the Central Flyway. Quivira NWR could be affected by alterations in streamflow in Rattlesnake Creek. Quivira NWR and its ecological significance are evaluated under Significant Scientific Resources.
Natural Areas	X		Quivira NWR is considered a natural area and is present within the project area. Quivira NWR could be affected by alterations in streamflow in Rattlesnake Creek. One additional natural area, Pratt Sandhills State Wildlife Management Area, is also located within the project area.
Migratory Birds and Bald and Golden Eagles	X		Migratory birds are present within the project area and could be affected by land disturbance activities or changes to their habitats. Though forest resources are limited within the project area, bald eagles could be present.
Cultural Resources/Historic Properties and Tribal Coordination	X		Though there are no sites listed in the National Register of Historic Places (NRHP) within the project area, a cultural resources survey of the project area (including both historic properties and archaeological resources) has not yet been conducted. Historic properties are documented in the watershed and additional undocumented properties may be present. A Section 106 Programmatic Agreement (PA) was accepted by the ACHP on August 27, 2025.
Civil Rights	X		According to data obtained from the United States Census Bureau, there are low-income populations, minority populations, and linguistically isolated populations within the project area.
Local, Regional, and National Economy	X		Implementation of any of the evaluated alternatives could result in impacts to the local and regional economy resulting from changes in agricultural practices.
Significant Scientific Resources	X		Quivira NWR was identified as a significant scientific resource within the project area based on its unique habitat types, wildlife resources, and ongoing research and monitoring programs.
Parklands (including National Parks, Monuments, and Historical Sites)	X		Three locally owned parks are present within the project area. There are no National Parks, National Monuments, or National Historic Sites within the project area according to NPS maps. Recreational areas managed by state or federal entities are evaluated under Natural Resources.

Item	Relevant	Not Relevant	Rationale
Climate Change	X		Evaluation of climate change is required by Principles, Requirements, and Guidelines (PR&G) analysis. Climate change represents an inherent uncertainty related to future conditions.
Land Use	X		Evaluation of land use is required by PR&G analysis. Land use within the project area, which is largely agricultural, could be altered based on implementation of alternatives.
Provisioning	X		Provisioning ecosystem services within the project area include crop production, livestock production, and other agricultural practices.
Regulating	X		Regulating ecosystem services within the project area include water quality and water filtration/purification in wetland areas.
Supporting	X		Supporting ecosystem services within the project area include nutrient cycling and biodiversity resilience.
Cultural	X		Cultural ecosystem services provided by the project area include educational values, recreation, and knowledge systems.

Issues Considered but Dismissed from Detailed Analysis

The below table presents resources determined to be not relevant with accompanying rationale (amended from Table 3.0-2 in the Plan-EIS). These were dismissed from analysis and not considered in the Plan-EIS.

Table 4: Non-Relevant Resources with Accompanying Rationale

Item	Relevant	Not Relevant	Rationale
Floodplain Management		X	The project area is not located with a 100-year floodplain or regulatory floodway based on a review of the Federal Emergency Management Agency (FEMA) National Flood Hazard Layer (NFHL) geospatial database.
Coastal Zone Management Areas		X	There are no Coastal Zone Management Areas within the project area. Kansas is not a coastal state, does not border the Great Lakes, and does not participate in the National Oceanic and Atmospheric Administration (NOAA) Coastal Zone Management Program.
Coral Reefs		X	According to the USGS NHD, the project area is landlocked and unconnected to marine environments. There are no coral reefs in the state of Kansas.

Item	Relevant	Not Relevant	Rationale
Wild and Scenic Rivers		X	According to the National Park Service (NPS) Wild and Scenic Rivers map and NPS Nationwide Rivers Inventory (NRI) map, there are no Wild and Scenic Rivers or NRI segments in the project area.
Air Quality		X	According to the EPA Green Book, no counties within the project area have nonattainment or maintenance statuses for criteria pollutants.
Forest Resources		X	According to the National Land Cover Database (NLCD), less than 1 percent of the project area is classified as forested land cover. Forested areas are not present in areas where construction activities could occur.
Essential Fish Habitat		X	According to the NOAA Essential Fish Habitat map, there are no designated essential fish habitats in the project area.
Social Issues		X	There are no known social issues within the project area or raised during scoping aside from concerns expressed regarding the local and regional economy, which are addressed separately within this document.
Public Health and Safety		X	No public health and safety concerns have been identified associated with any of the evaluated alternatives. There will be no increased exposure to natural hazards resulting from implementation of any alternative.
Scenic Beauty		X	There are no federally designated National Scenic Areas within or near the project area. No areas of scenic beauty were further noted or identified during scoping.

ENVIRONMENTAL REVIEW & CONSULTATION

The following documents compliance with the National Environmental Policy Act (NEPA) and other relevant environmental laws, executive orders, and regulations.

National Environmental Policy Act

Potentially Affected Environment

The existing physical, biological, social, and economic conditions that may be affected by implementation of the alternatives (Plan-EIS: Chapter 5) are presented in Chapter 4: Affected Environment (Plan-EIS). The geographic scope of analysis varies from a multicounty region to the project area (Figure 1) depending on available data and the potential extent of an alternative's impacts. The description of the affected environment is based primarily on desktop studies and on information obtained from published documents regarding nearby projects and

interviews of resource agency personnel familiar with the area. Please see Chapter 4 (Affected Environment) in the Plan-EIS for the complete presentation of potentially affected resources.

Environmental Impacts

What are the reasonably foreseeable short- and long-term and beneficial or adverse effects of implementing the proposed action or action alternatives on the environment, public health and safety, economics, and the quality of life of the American people?

The Comparison of Environmental Consequences table below (Plan-EIS: Table 6.0) provides a side-by-side summary comparison of the environmental effects and degree of impact determination for the No Action Alternative, Augmentation Wellfield and Groundwater Use Reduction Alternative, and the Groundwater Use Reduction Alternative. Impacts to identified resources are further explained in Chapter 6 of the Plan-EIS.

Table 5: Comparison of Environmental Consequences (Plan – EIS: Table 6.0).

Affected Environment Category	No Action Alternative	Augmentation Wellfield and Groundwater Use Reduction Alternative	Groundwater Use Reduction Alternative
Geology and Soils	No ground disturbance will occur.	Ground disturbance activities for construction of the augmentation wellfield will result in soil disturbance and potential soil loss. This will be mitigated with the use of erosion control devices and disturbances should generally occur in previously disturbed areas.	No ground disturbance will occur.
Determination Compared to No Action Alternative	*N/A*	*Negative Minor Effect (short-term)*	*No Effect*
Determination Compared to Existing Conditions	*No Effect*	*Negative Minor Effect (short-term)*	*No Effect*
Aquifers and Sole Source Aquifers	The decrease in groundwater withdrawals would have a beneficial impact (32,400 AFY) to the Great Bend Prairie Aquifer.	The predicted reduction in aquifer storage resulting from augmentation pumping is 950-980 acre-feet per year (AFY), depending on wellfield configuration. The impact of this reduction in aquifer storage on water levels in the aquifer increased over time and depended on augmentation demands. Long-term changes in water levels caused by operation of the wellfield are anticipated to be a decline of approximately 5-10 feet over the projected 50-year project life in the vicinity of the wellfield. This includes the USFWS owned Hornbaker Tract which is expected to be within the 0.5-2 foot drawdown (depending on wellfield configuration and quantity of pumping).	The decrease in groundwater withdrawals would have a beneficial impact (46,400 AFY) to the Great Bend Prairie Aquifer.
Determination Compared to No Action Alternative	*N/A*	*Negative Minor Effect (long-term)*	*Beneficial Minor Effect (long-term)*

Affected Environment Category	No Action Alternative	Augmentation Wellfield and Groundwater Use Reduction Alternative	Groundwater Use Reduction Alternative
Determination Compared to Existing Conditions	*Beneficial Minor Effect (long-term)*	*Negative Minor Effect (long-term)*	*Negligible Effect*
Climate	Water right retirements (101,657 acre-feet) would reduce carbon dioxide emissions by 58,418 metric tons (MT) per year.	Net energy usage from the augmentation wellfield (with an electrical power source) and the targeted retirements would reduce carbon dioxide emissions by 1,436 MT per year.	Water right retirements (107,369 acre-feet) would reduce carbon dioxide emissions by 61,700 MT per year.
Determination Compared to No Action Alternative	*N/A*	*Negative Minor Effect (long-term)*	*Negligible Effect*
Determination Compared to Existing Conditions	*Beneficial Minor Effect (long-term)*	*Beneficial Minor Effect (long-term)*	*Beneficial Minor Effect (long-term)*
Historic Properties	No ground disturbance will occur.	Although ground disturbance will occur, no historic properties will be impacted. If archaeological resources are discovered during construction, proper mitigation and notification procedures will be followed and resources will be avoided.	No ground disturbance will occur.
Determination Compared to No Action Alternative	N/A	No effect	No effect
Determination Compared to Existing Conditions	No effect	No effect	No effect

Affected Environment Category	No Action Alternative	Augmentation Wellfield and Groundwater Use Reduction Alternative	Groundwater Use Reduction Alternative
Socioeconomics	The curtailment of junior water rights within Zone B has the potential to affect 90,212 acres of currently reporting irrigated croplands. Net farm income would decrease on average by $5 million annually. Total jobs lost is estimated at 154.	Net farm income under the Augmentation Wellfield and Groundwater Use Reduction Alternative would increase on average by $4.9 million annually, relative to the No Action Alternative. This alternative is expected to maintain 107 jobs that would be lost under the No Action Alternative.	Net farm income would decrease on average by $1.4 million annually, relative to the No Action Alternative. Employment is expected to decrease by two jobs annually relative to the No Action Alternative.
Determination Compared to No Action Alternative	*N/A*	*Beneficial Major Effect*	*Negative Minor Effect (long-term)*
Determination Compared to Existing Conditions	*Negative Major Effect*	*Negative Minor Effect (long-term)*	*Negative Major Effect*
Parklands and Natural Areas	Increased supply of water to Quivira National Wildlife Refuge (NWR) will support the recreational opportunities available there.	Increased supply of water to Quivira NWR will support the recreational opportunities available there.	Increased supply of water to Quivira NWR will support the recreational opportunities available there.
Determination Compared to No Action Alternative	*N/A*	*Negligible Effect*	*Negligible Effect*
Determination Compared to Existing Conditions	*Beneficial Major Effect*	*Beneficial Major Effect*	*Beneficial Major Effect*

Affected Environment Category	No Action Alternative	Augmentation Wellfield and Groundwater Use Reduction Alternative	Groundwater Use Reduction Alternative
Land Cover and Land Use	Although no ground disturbance will occur, the 90,212 acres of currently reporting irrigated croplands will need to be converted to a nonirrigated land use (i.e., dryland cultivated cropland, pasture/hay) following the water right curtailment. Distribution of and total acres of land cover classifications should not be significantly affected.	Land cover and land use changes will be highly localized and limited to 5.6 acres within easements surrounding well sites and 2,300 acres will be converted to a nonirrigated land use (i.e., dryland cultivated cropland, pasture/hay) following the water right retirements. Distribution of and total acres of land cover classifications should remain unchanged.	No ground disturbance will occur, and because farmers in Zone A would be allowed to maintain some level of groundwater pumping, any transition from agricultural land use would not be expected. A mixture of irrigation and dryland farming practices would be supported by reduced groundwater pumping.
Determination Compared to No Action Alternative	*N/A*	*Negligible Effect*	*Negligible Effect*
Determination Compared to Existing Conditions	*Negligible Effect*	*Negligible Effect*	*Negligible Effect*

Affected Environment Category	No Action Alternative	Augmentation Wellfield and Groundwater Use Reduction Alternative	Groundwater Use Reduction Alternative
Prime Farmland	Curtailment of junior water rights within Zone B would lead to changes in farming practices to less water-intensive forms of agriculture. However, the use of this land for agriculture is expected to be maintained; permanent conversion of prime farmland from agricultural to nonagricultural land use is possible but not expected.	Conversion of prime or unique farmland will be highly localized and limited to the 5.6 acres within easements surrounding well sites. Drawdown from the augmentation wellfield has the potential to cause a slight decrease in crop productivity near the well sites; however, prime farmland status should be maintained.	No ground disturbance will occur, and because farmers in Zone A would be allowed to maintain some level of groundwater pumping, permanent conversion of prime farmland from agricultural to nonagricultural land use is not expected.
Determination Compared to No Action Alternative	*N/A*	*Negative Minor Effect (long-term)*	*No Effect*
Determination Compared to Existing Conditions	*No Effect*	*Negative Minor Effect (long-term)*	*No Effect*
Surface Water Resources and Water Quality	Curtailment of the 810 junior water rights (90,212 acres) within Zone B would result in an average increase in baseflow of 23,400 AFY in Rattlesnake Creek over the 53-year simulation period. Quality of habitat for streams and wetlands would be improved.	Net increase (augmentation deliveries plus increases from water right retirements) to downstream Rattlesnake Creek would be approximately 6,500 AFY. Wetland habitat downstream of the augmentation deliveries would be improved. The total reduction in streamflow to all streams would range between 1,560 AFY to 2,060 AFY. Wetlands in the vicinity of the augmentation wellfield could have decreased surface hydrology within the cone of depression but are anticipated to retain their wetland status. Changes in water quality may occur.	A 60 percent reduction in pumping by all groundwater users in Zone A would result in an average increase in baseflow of 18,800 AFY over the 53-year simulation period. Quality of habitat for streams and wetlands would be improved. Water quality could be improved by decreasing surface runoff.

Affected Environment Category	No Action Alternative	Augmentation Wellfield and Groundwater Use Reduction Alternative	Groundwater Use Reduction Alternative
Determination Compared to No Action Alternative	*N/A*	*Upstream Rattlesnake Creek: Negative Moderate Effect (due to continued pumping in Zone B); Downstream Rattlesnake Creek: Negligible Effect (benefits to surface water resources would be similar but not as beneficial as the No Action Alternative)* *Negative Minor Effect (long-term from reductions in streamflow and changes to water quality).*	*Negligible Effect (benefits to surface water resources would be similar to the No Action Alternative)*
Determination Compared to Existing Conditions	*Beneficial Major Effect*	*Beneficial Moderate Effect (from baseflow increases), Negative Minor Effect (long-term from reductions in streamflow and changes to water quality).*	*Beneficial Major Effect*
Regional Water Resource Plans	No impacts or changes to existing regional water resource plans would occur.	No impacts or changes to existing regional water resource plans would occur.	Would affect existing regional water resource plans through the establishment of a new Local Enhanced Management Area (LEMA) or Intensive Groundwater Use Control Area (IGUCA). This would be supported by the existing framework Regional Water Resource Plans.
Determination Compared to No Action Alternative	*N/A*	*No Effect*	*Negligible Effect*
Determination Compared to Existing Conditions	*No Effect*	*No Effect*	*Negligible Effect*

Affected Environment Category	No Action Alternative	Augmentation Wellfield and Groundwater Use Reduction Alternative	Groundwater Use Reduction Alternative
Riparian Areas	No ground disturbance will occur. Reductions in groundwater pumping will lead to increased stream levels, which would benefit the existing 5,516 acres of riparian areas in Zone B.	Water right retirements will lead to increased stream levels that will have varying benefits (depending on proximity) to the 3,340 acres of riparian areas in Zone D. Positive impacts to riparian areas will occur downstream of the delivery point in Rattlesnake Creek. Pipeline construction will have direct impacts to 2.9 acres of riparian areas. Drawdown from the augmentation wellfield will result in indirect impacts to riparian areas. Potential changes in vegetation may cause a shift in species composition.	No ground disturbance will occur. Reductions in groundwater pumping will lead to increased stream levels, which would benefit the existing 9,556 acres of riparian areas in Zone A.
Determination Compared to No Action Alternative	*N/A*	*Negligible Effect (benefits to riparian areas would be similar to the No Action Alternative)* *Negative Minor Effect (short-term from construction and long-term from augmentation wellfield drawdown)*	*Negligible Effect (benefits to riparian areas would be similar to the No Action Alternative)*
Determination Compared to Existing Conditions	*Beneficial Minor Effect (long-term)*	*Negative Minor Effect (short-term from construction and long-term from augmentation wellfield drawdown)* *Beneficial Minor Effect (long-term) to Rattlesnake Creek (increased stream levels from augmentation and water right retirements).*	*Beneficial Minor Effect (long-term)*

Affected Environment Category	No Action Alternative	Augmentation Wellfield and Groundwater Use Reduction Alternative	Groundwater Use Reduction Alternative
Fish and Wildlife Resources	Cessation of pumping in Zone B will result in increased streamflow to Rattlesnake Creek and water delivery to Quivira NWR. Increased water availability would increase habitat availability for multiple aquatic, avian, and terrestrial species.	Downstream Rattlesnake Creek wetland habitat would be enhanced by increased surface waters from water right retirements and augmentation deliveries. Temporary impacts to wildlife habitat will occur as a result of construction; however, no permanent impacts to wildlife are expected. Water provided by the augmentation wellfield would be different from natural water delivered by Rattlesnake Creek, which may affect species composition for fish and wildlife species.	Reduction of pumping in Zone A will result in increased streamflow to Rattlesnake Creek and water delivery to Quivira NWR. Increased water availability would increase habitat availability for multiple aquatic, avian, and terrestrial species.
Determination Compared to No Action Alternative	*N/A*	*Negligible Effect (benefits to fish and wildlife resources would be similar to the No Action Alternative)* *Negative Minor Effect (short-term from construction and long-term from differences between surface water and groundwater)*	*Negligible Effect (benefits to fish and wildlife resources would be similar to the No Action Alternative)*
Determination Compared to Existing Conditions	*Beneficial Moderate Effect*	*Negative Minor Effect (short-term from construction and long-term from differences between surface water and groundwater)* *Beneficial Moderate Effect to downstream Rattlesnake Creek (as a result of increased stream levels from augmentation deliveries and water right retirements).*	*Beneficial Moderate Effect*

Affected Environment Category	No Action Alternative	Augmentation Wellfield and Groundwater Use Reduction Alternative	Groundwater Use Reduction Alternative
Invasive Species	No ground disturbance will occur. The No Action Alternative would not contribute to the introduction, spread, or persistence of invasive species.	Construction of the augmentation wellfield and associated pipeline system would involve a maximum of 179 acres of ground disturbance. Construction and land disturbance activities may inadvertently serve as transportation or introduction vectors for invasive plant species. Implementation of construction best management practices (BMPs) would minimize the risk of the spread or introduction of invasive plant species.	No ground disturbance will occur. The Groundwater Use Reduction Alternative would not contribute to the introduction, spread, or persistence of invasive species.
Determination Compared to No Action Alternative	*N/A*	*Negligible Effect*	*No Effect*
Determination Compared to Existing Conditions	*No Effect*	*Negligible Effect*	*No Effect*
Threatened and Endangered Species	Cessation of pumping in Zone B will result in increased streamflow to Rattlesnake Creek and water delivery to Quivira NWR. Increased water availability could increase habitat availability for threatened and endangered species.	Downstream Rattlesnake Creek wetland habitat would be enhanced by increased surface waters from water right retirements and augmentation deliveries.. Temporary impacts will occur as a result of construction; however, no permanent impacts to threatened and endangered species are expected as a result of construction and operation of the augmentation wellfield. The change of water supply from surface water to pumped groundwater may cause habitat changes downstream of the delivery point that could potentially result in impacts to threatened and endangered species and their habitat.	Reduction of pumping in Zone A will result in increased streamflow to Rattlesnake Creek and water delivery to Quivira NWR. Increased water availability could increase habitat availability for threatened and endangered species.

Affected Environment Category	No Action Alternative	Augmentation Wellfield and Groundwater Use Reduction Alternative	Groundwater Use Reduction Alternative
Determination Compared to No Action Alternative	*N/A*	*Negligible Effect (benefits to threatened and endangered species habitat would be similar to the No Action Alternative)* *Negative Minor Effect (short-term from construction and long-term from differences between surface water and groundwater)*	*Negligible Effect (benefits to threatened and endangered species habitat would be similar to the No Action Alternative)*
Determination Compared to Existing Conditions	*Beneficial Minor Effect (long-term)*	*Negative Minor Effect (short-term from construction and long-term from differences between surface water and groundwater)* *Beneficial Minor Effect (long-term as a result of increased stream levels from augmentation deliveries and water right retirements).*	*Beneficial Minor Effect (long-term)*
Migratory Birds, Bald Eagles, and Golden Eagles	Cessation of pumping in Zone B will result in increased streamflow to Rattlesnake Creek and water delivery to Quivira NWR. Increased water availability would increase habitat availability for migratory bird and eagle habitat.	Ground disturbance and construction activities could result in temporary impacts. Protective measures will be put in place and no permanent impacts are anticipated as a result of construction. Increased water availability to downstream Rattlesnake Creek and Quivira NWR would support nesting, feeding, and resting habitat for migratory birds and eagles.	Reduction of pumping in Zone A will result in increased streamflow to Rattlesnake Creek and water delivery to Quivira NWR. Increased water availability would increase habitat availability for migratory bird and eagle habitat.
Determination Compared to No Action Alternative	*N/A*	*Negligible Effect (benefits to migratory bird and eagle habitat would be similar to the No Action Alternative)* *Negative Minor Effect (short-term from construction)*	*Negligible Effect (benefits to migratory bird and eagle habitat would be similar to the No Action Alternative)*
Determination Compared to Existing Conditions	*Beneficial Minor Effect (long-term)*	*Negative Minor Effect (short-term from construction)* *Beneficial Minor Effect (long-term as a result of increased stream levels from augmentation deliveries and water right retirements).*	*Beneficial Minor Effect (long-term)*

Affected Environment Category	No Action Alternative	Augmentation Wellfield and Groundwater Use Reduction Alternative	Groundwater Use Reduction Alternative
Significant Scientific Features	No ground disturbance would occur. Implementation of the No Action Alternative would benefit the refuge by contributing to the stabilization of streamflow in Rattlesnake Creek. By curtailing groundwater pumping in Zone B, baseflow in Rattlesnake Creek would increase over time and result in additional water availability within Quivira NWR, resulting in improved water supply to support the refuge's unique wetland habitat.	Ground disturbance activities would occur outside of the boundaries of Quivira NWR and would have no impacts to significant scientific features. Changes in discharge to Rattlesnake Creek along the entire reach versus pumped to a single location may cause differences in minerals, nutrients, pollutants, and biotic components. These differences in water composition should be minimized as water flows into Rattlesnake Creek and is mixed in Little Salt Marsh. Deliveries from the augmentation wellfield will increase baseflow and result in additional water availability within Quivira NWR, resulting in improved water supply to support the refuge's unique wetland habitat.	No ground disturbance would occur. Implementation of the Groundwater Use Reduction Alternative would benefit the refuge by contributing to the stabilization of streamflow in Rattlesnake Creek. By reducing groundwater pumping in Zone A, baseflow in Rattlesnake Creek would increase over time and result in additional water availability within Quivira NWR, resulting in improved water supply to support the refuge's unique wetland habitat.
Determination Compared to No Action Alternative	*N/A*	*Negligible Effect (benefits to significant scientific features would be similar to the No Action Alternative)* *Negative Minor Effect (long-term from differences between surface water and groundwater)*	*Negligible Effect (benefits to significant scientific features would be similar to the No Action Alternative)*
Determination Compared to Existing Conditions	*Beneficial Major Effect*	*Negative Minor Effect (long-term from differences between surface water and groundwater)* *Beneficial Major Effect (as a result of increased water availability within Quivira NWR).*	*Beneficial Major Effect*

Are there opportunities to lessen adverse environmental impacts?

Mitigation measures for the project are described in Section 8.3: Mitigation, in the Plan-EIS. In summary, mitigation measures to lessen adverse environmental impacts would include use of appropriate best management practices during construction (related to erosion, surface water quality, air quality, noxious weeds and invasive plants), as well as observing required restrictions for bird breeding/nesting periods and following the Cultural Resources Survey Plan (Plan EIS: Appendix A).

What are the negative environmental effects or consequences to public health and safety, economics, and the quality of life of the American people if the proposed action or action alternatives are not implemented?

Implementation of the Augmentation Wellfield and Groundwater Use Reduction Alternative would result in a positive impact on the regional economy (socioeconomics) and the population that lives and works in the area compared to the No Action Alternative. Under the No Action and Groundwater Use Reduction alternatives, the reduction in irrigation pumping comes at a major and significant cost to the regional economy and local population. Under the No Action and Groundwater Use Reduction alternatives, net farm income would be reduced depending on crop scenario (on average $5 million annually compared to existing conditions for the No Action Alternative and on average an additional decrease of $1.4 million annually for the Groundwater Use Reduction Alternative). Net farm income under the Augmentation Wellfield and Groundwater Use Reduction Alternative would also decrease relative to existing conditions, but to a far less degree than the No Action or Groundwater Use Reduction alternatives (up to $2 million annually depending on crop scenario). Relative to the No Action Alternative, net farm income would increase up to $7 million annually under the Augmentation Wellfield and Groundwater Use Reduction Alternative.

Grain sales would be reduced under the No Action Alternative ($41.2 million annually) and the Groundwater Reduction Alternative ($40.6 million annually). Under the Augmentation Wellfield and Groundwater Use Reduction Alternative, grain sales would increase $26.8 million relative to the No Action Alternative and decrease $12.6 million relative to existing conditions (IMPLAN 2024). Decreases in grain production would result in reductions in farm employment. Under the No Action Alternative and Groundwater Use Reduction Alternative, total job loss would be 154 jobs and 152 jobs, respectively, compared to existing conditions. Under the Augmentation Wellfield and Groundwater Use Reduction Alternative, 107 jobs would be maintained that would be lost under the No Action Alternative. These decreases in jobs would, in turn, reduce labor income in the regional economy by approximately $11 million under the No Action and Groundwater Use Reduction Alternatives. Labor income would increase by approximately $2 million under the Augmentation Wellfield and Groundwater Use Reduction Alternative (IMPLAN 2024).

The Augmentation Wellfield and Groundwater Use Reduction Alternative achieves the primary objective of maximizing net economic benefits while minimizing environmental impacts. Benefits to the public under the NED alternative include monetized net economic benefits and benefits to provisioning ecosystem services.

Table 6: Summary of Regional Economic Impacts (Plan - EIS: Table 8.1.1.).

Economic Resource	No Action Alternative	Augmentation Wellfield and Groundwater Use Reduction Alternative	Groundwater Use Reduction Alternative
Net Farm Income	Net farm income would decrease on average by $5.0 million, annually, compared to existing conditions.	Net farm income would increase on average by $5 million, annually, relative to the No Action Alternative.	Net farm income would decrease on average by $1.4 million, annually, relative to the No Action Alternative.
Grain Sales	Grain sales are expected to be reduced by $41.2 million annually, compared to existing conditions.	Grain sales will increase by $28.6 million relative to the No Action Alternative.	Grain sales are expected to increase slightly by approximately $610,000 relative to the No Action Alternative.
Employment	Total job loss is estimated at 154 jobs relative to existing conditions.	Employment is expected to maintain 107 jobs that would be lost under the No Action Alternative (47 jobs would be lost).	Total employment is expected to maintain 2 jobs that would be lost under the No Action Alternative (152 jobs would be lost).
Labor Income	Total labor income under this alternative will decrease by $11.4 million annually relative to existing conditions.	Total labor income under this alternative will increase by $7.9 million annually relative to the No Action Alternative.	Total labor income under this alternative will increase slightly by approximately $168,000 relative to the No Action Alternative.

Source: Abt 2024, IMPLAN 2024

How will the proposed action or action alternatives make an irreversible or irretrievable commitment of Federal resources?

In its Phase 2 final rule, the Council on Environmental Quality (CEQ) interprets the phrase ‘‘Federal resources’’ to plainly mean resources owned by the Federal Government or held in trust for Tribal Nations (89 FR 35442, 35507). There would not be any irreversible or irretrievable commitment of Federal resources as a result of this project.

How will the irreversible or irretrievable commitment of Federal resources contribute to a loss of long-term productivity for the human environment?

There would not be any irreversible or irretrievable commitment of Federal resources as a result of this project that would contribute to a loss of long-term productivity for the human environment.

Endangered Species Act

The pertinent subject matter expert(s) reviewed the proposed action and action alternatives and documented determinations for threatened, endangered, proposed and/or candidate species (TEPC) and/or critical habitat in a Biological Assessment (BA). A “may affect, likely to adversely affect” determination was **not** reached for any species listed as threatened or endangered under the ESA.

Through an initial project-level review, threatened and endangered species were determined to have the potential to occur within the project area. Informal consultation was initiated with USFWS to receive technical assistance on species that may be affected by the proposed project and coordinate a BA to document effects that the proposed project may have on the listed species.

A virtual meeting was held among USFWS, NRCS, Olsson, and GMD #5 on November 16, 2022. Discussions included species reviewed in the draft Plan – EA and additional species that may need to be reviewed. BA options discussed included completion within the draft Plan – EA or as a separate document. An official species list was requested by email on December 28, 2022, and received by email on January 10, 2023. An updated species list was received on April 11, 2023; an additional update was requested on April 3, 2024; and a response was received on April 25, 2024. The updated species list had two changes (one species was removed and one was added) and remained at 16 ESA-listed species. A final species list was received from USFWS via email on August 29, 2025, during coordination for the BA. This list contained 19 species. Email communication from USFWS is provided in Appendix A of the Plan - EIS.

A BA was completed by NRCS and submitted to USFWS. Concurrence from USFWS was received on December 17, 2025. Listed species either received a “no effect” or “may affect, not likely to adversely affect” determination based on project design commitments and assumptions.

Table 7. Federally Listed Threatened and Endangered Species within the Project Area.

Common Name	Scientific Name	Status	Determination
Northern Long-eared Bat	*Myotis septentrionalis*	FE	May Affect, not Likely to Adversely Affect
Eastern Black Rail	*Laterallus jamaicensis ssp. jamaicensis*	FT	May Affect, not Likely to Adversely Affect
Eskimo Curlew	*Numenius borealis*	FE	No Effect
Piping Plover	*Charadrius melodus*	FT, ST	May Affect, not Likely to Adversely Affect
Red Knot	*Calidris canutus rufa*	FT	May Affect, not Likely to Adversely Affect
Whooping Crane	*Grus americana*	FE, SE, CH	May Affect, not Likely to Adversely Affect
Arkansas River Shiner	*Notropis girardi*	FT, SE	No Effect
Peppered Chub	*Macrhybopsis tetranema*	FE, SE	No Effect

FE = Federally Endangered; FT = Federally Threatened; SE = State Endangered; ST = State Threatened; CH = Federally Designated Critical Habitat.

Table 8: Applicable proposal record documentation to support ESA compliance

Documentation Type	File Name (if applicable/needed)
Biological Assessment	Appendix B

Documentation Type	File Name (if applicable/needed)
Letter of Concurrence from USFWS	Appendix A
USFWS Official Species List	Appendix A

National Historic Preservation Act – Section 106 Review

The pertinent subject matter expert has reviewed the proposed action and action alternatives and made the following determination regarding Section 106 compliance:

Section 106 review meets compliance stipulations of a Programmatic Agreement (see comments section).

On October 3, 2022, NRCS sent written correspondence to the Kansas SHPO to request consultation on the Rattlesnake Creek Watershed Plan - EIS. The SHPO replied on October 26, 2022, that “the project area is not proximal to any recorded archaeological sites” (KHS 2022). However, the project will take place adjacent to Peace Creek, and the SHPO identified this area as having moderate archeological potential and that this area of Stafford County is severely underrepresented in the archeological survey record (KHS 2022). Because the area has not been surveyed before, it is in proximity to Peace Creek (which has a moderate archaeological potential), and the depth of disturbance may affect buried cultural deposits, SHPO requested that a professional archaeologist survey the area prior to beginning construction. This consultation is included in Appendix A of the Plan - EIS.

In consultation with SHPO and the tribes, NRCS has developed a Programmatic Agreement (PA) to defer identification and evaluation of cultural resources and historic properties in accordance with 36 CFR 800.4(b)(2). Any required mitigation will be addressed through the PA. The PA was signed by the Kansas State Conservationist on July 29, 2025, and transmitted to ACHP in accordance with 36 CFR 800.6(a)(1)(i)(C). The ACHP accepted the PA by letter on August 27, 2025.

Table 9: Applicable proposal record documentation to support NHPA compliance

Documentation Type	File Name (if applicable/needed)
Programmatic Agreement (Signed)	Appendix A
ACHP Acceptance Letter	Appendix A

Consultation with Federally Recognized Tribes

Consultation with federally recognized tribes was conducted as follows:

NRCS sent letters notifying the Osage Nation of Oklahoma and the Wichita and Affiliated Tribes of the NEPA scoping process with a request for comments and an initiation of consultation under NHPA Section 106 on January 6, 2022; a follow up letter was sent to both tribes on September 29, 2022. In mid-2023, the Kiowa Indian Nation of Oklahoma notified NRCS of its consultation interest in projects throughout Kansas. Subsequently, NRCS sent a letter notifying the Kiowa Indian Tribe of Oklahoma of the NEPA scoping process with a request for comments and an initiation of consultation under NHPA Section 106 on May 6, 2024. In June 2024, NRCS learned of Prairie Band Potawatomi Nation’s consultation interest in projects throughout Kansas and initiated consultation. NRCS transmitted the draft PA to the SHPO and five tribes (Osage

Nation of Oklahoma, Wichita and Affiliated Tribes, Kiowa Tribe of Oklahoma, Prairie Band Potawatomi Nation, and Cheyenne and Arapaho Tribes of Oklahoma) from August 21, 2024, and September 3, 2024, and transmitted follow-up emails four times from October 2024 to December 2024.

Table 10: Applicable proposal record documentation to support tribal consultation

Documentation Type	File Name (if applicable/needed)
Tribal Consultation Letters	Appendix A

Clean Water Act

The pertinent subject matter expert has reviewed the proposed action and action alternatives and made the following determination:

The project will not affect any waters, including wetlands, and no further permits or modifications are needed to ensure compliance.

A Clean Water Act Section 404 permit must be obtained from the USACE to account for fills within jurisdictional Waters of the United States (WOTUS). If needed, GMD #5 will obtain a Clean Water Act Section 404 permit prior to construction. In USACE's acceptance to become a cooperating agency, it was noted that a Section 404 permit will not need to be obtained from USACE if proposed improvements do not require the discharge of dredge or fill materials into WOTUS. Early coordination indicated that a Section 404 permit is unlikely to be needed based on the scope of proposed improvements, but WOTUS impacts and associated Section 404 permitting needs will not be fully known until the project proceeds to design.

Clean Air Act

The pertinent subject matter expert has reviewed the proposed action and action alternatives and made the following determination regarding the Clean Air Act:

Other - See explanation of other determination in comments section.

The project will comply with all the requirements of section 114 of the Clean Air Act as amended (42 USC Section 7414). According to the EPA Green Book, no counties within the project area have nonattainment or maintenance statuses for criteria pollutants. The project complies with the Clean Air Act and will not cause or contribute to a violation of NAAQS.

There will be no net increase in emissions as a result of the project. Net energy usage from the augmentation wellfield (with an electrical power source) and the targeted retirements would reduce carbon dioxide emissions by 1,436 MT per year (Plan – EIS Section 6.3.2). Construction activities would temporarily emit air pollutants. Fugitive dust, mobile source air toxics (MSAT), and GHG emission increases associated with construction would be minimized through implementation of applicable BMPs (Plan-EIS Section 8.3.3). No permits or additional actions are required for compliance under Clean Air Act.

Special Management Area Considerations

The pertinent subject matter expert has reviewed the proposed action and action alternatives and made the following determinations based on special management area presence, proximity, or lack of:

Activities are proposed within or in the vicinity of Special Management Areas such as wilderness, wilderness study areas, wild and scenic rivers, inventoried roadless, or national recreation areas.

Table 11: Special management area compliance determinations

Management Area Type	Applicable Law / Regulation to Demonstrate Compliance With	Rationale for Compliance
National Wildlife Refuge (NWR)	16 U.S.C. 668dd et seq.	Activities will be in the vicinity of Quivira NWR, but no project elements will be located on the Refuge.

Pertinent Executive Orders

The applicable subject matter experts have determined the proposed action and action alternatives are in compliance with the following Executive Orders (EO), which were deemed pertinent based on the nature of the proposal:

EO 11990, Protection of Wetlands – avoid actions within wetlands unless there are no practical alternatives, and the action includes all practicable means to minimize harm to wetlands. If this changes during the design process, GMD #5 will obtain a Clean Water Act Section 404 permit prior to construction if needed and will maintain compliance with EO 11990.

Based on current design, the project will not affect any waters, including wetlands, and no further permits or modifications are needed to ensure compliance.

EO 13007, Indian Sacred Sites – avoid adversely affecting the physical integrity of these sites.

NRCS has developed a Programmatic Agreement (PA) to defer identification and evaluation of cultural resources and historic properties in accordance with 36 CFR 800.4(b)(2). Any required mitigation will be addressed through the PA.

EO 13112, Invasive Species – prevent the introduction of invasive species and provide for their control and to minimize the economic, ecological, and human health impacts that invasive species cause.

Construction activities could result in the introduction and/or spread of invasive plants. To reduce this risk, the following measures will be implemented during construction:

- Educate construction supervisors and managers on weed identification and the importance of controlling and preventing the spread of invasive weeds.
- Minimize surface disturbance to the greatest extent feasible to complete the work.
- Use certified, weed-free, imported erosion-control materials (or rice straw in upland areas).
- Use locally grown native plant stock and native or naturalized (noninvasive) grass seed during revegetation.
- Prior to arrival at the project site and prior to leaving the project site, the construction contractor must clean all construction equipment that may contain invasive plants and/or seeds to reduce the spreading of noxious weeds.

EO 13186, Migratory Birds – identify actions that may have a measurable negative effect on migratory bird populations.

Construction activities could result in temporary impacts to nesting migratory birds and raptors. To reduce impacts, the following measures will be implemented:

- Construction activities would be limited to the smallest extent practicable within the project area.
- Disturbed areas would be restored following construction.
- Vegetation clearing activities will be conducted between July 16 and March 31 to avoid migratory bird breeding/nesting periods.
- If construction activities occur during migratory bird breeding/nesting periods (April 1 to July 15), the project area (and surrounding habitats) would be surveyed by a qualified biologist for active nests no more than five days prior to the commencement of work. If active nests are found during surveys, spatial buffers would be established around them in coordination with USFWS and NRCS. Construction activities within the buffer areas would be prohibited until a qualified biologist confirmed that all nests are no longer active.

Certifying Statement for EIS Page Limit and Deadline

The Responsible Official certifies that this EIS:

Demonstrates the agency has thoroughly considered the factors mandated by NEPA;

☒ Represents the agency's good-faith effort to prioritize documentation of the substantive issues and most important considerations required by NEPA within the congressionally mandated page limits;

☒ Reflects the agency's expert judgment;

☒ Addressed briefly, or left unaddressed, any issues or considerations that were, in the agency's judgment, comparatively not of a substantive nature;

☒ Represents the agency's good-faith effort to fulfill NEPA's requirements within the Congressional timeline (or within the minimally extended timeline) and this effort is substantially complete; and

☒ Contains analysis that is adequate to inform and reasonably explain the responsible official's final decision regarding the proposed action or selected alternative.

REFERENCES

Abt Associates. 2024. Economic Assessment of Rattlesnake Creek Watershed Plan Alternative. November 2024.

IMPLAN 2024. Analysis with IMPLAN 2022 data year, using inputs provided by the user and IMPLAN Group LLC, IMPLAN System (data and software), 16905 Northcross Dr., Suite 120, Huntersville, NC 28078. Available at: www.IMPLAN.com.

KDA-DWR. 2016. Final Report of the Chief Engineer. David W. Barfield. July 15, 2016.

APPENDICES

Appendix A: Public Participation and Agency Coordination

Appendix B: Biological Assessment

RECORD OF DECISION (ROD)

Proposal Name: Watershed Plan – Environmental Impact Statement for Rattlesnake Creek Watershed **Proposal Tracking #:** EISX-005-53-020-1379696002

Agency Name: NRCS **Unit Name:** NRCS Kansas State Office

Documentation Informing the ROD

This Record of Decision incorporates the Environmental Impact Statement and relies on documentation in the associated proposal record.

Consideration of Substantive Alternatives, Information, and Analyses

The agency adequately considered all of the substantive alternatives, information, and analyses submitted by State, Tribal, and local governments and public commenters in developing the environmental impact statement.

The agency and tribal consultation efforts undertaken as part of developing the Plan–EIS, involved NRCS coordination with federal, state, and local agencies, as well as Tribal Nations, to share project information, request input, and ensure compliance with applicable environmental and cultural resource requirements. The consultation process included distributing draft materials, soliciting feedback on technical, regulatory, and environmental considerations, and incorporating comments into the planning process. These coordinated interactions helped identify relevant issues, refined the scope of analysis, and supported continued collaboration throughout the National Environmental Policy Act (NEPA) process.

The scoping and public involvement process for the Plan–EIS included a January 13, 2022 open-house meeting in St. John, Kansas, where attendees received project background information and provided input during a 30-day comment period. This was followed by the publishing a Notice of Intent in the Federal Register announcing NRCS's plan to prepare the watershed plan and EIS on December 28, 2023. On April 18, 2025, NRCS posted a Notice of Availability for the draft EIS that opened a 45-day public comment period and on May 8, 2025 NRCS and GMD #5 hosted a open-house public meeting where NRCS staff shared materials, answered questions, and provided instructions for submitting comments, with all materials made available online for the Draft EIS. The public comment period closed on June 2, 2025.

The Natural Resources Conservation Service (NRCS) considered all substantive comments received during the NEPA process in developing the Environmental Impact Statement (EIS) and Record of Decision (ROD). Public involvement included scoping meetings, publication of a Notice of Intent, and a 45-day comment period following the release of the Draft EIS. A total of 117 comments were received and reviewed. These comments informed refinements to alternatives, mitigation measures, and the scope of analysis. A summary of public participation and agency coordination is provided in Appendix A, and the full comment/response documentation is maintained in the project record for transparency and compliance with NEPA requirements.

Additionally, NRCS has prepared a Summary of Comments Received on the Final EIS with Responses (Attachment 1). This document outlines the substantive comments received during

the NEPA process and the agency's responses. While these comments did not require revisions to the Final EIS, the summary demonstrates how input from Tribes, agencies, organizations, and the public was considered in developing the Final EIS and informing this decision.

Activities Approved

I have decided to approve the Augmentation Wellfield and Groundwater Use Reduction Alternative as described in the "Proposal Information" section of the Environmental Impact Statement to be the focus of the Rattlesnake Creek Watershed Plan and any potential future NRCS actions authorized by statute to implement [this plan].

Mitigation measures will be implemented as needed and as appropriate during construction. Potential mitigation measures are detailed in Section 8.3 of the Plan-EIS, which describes a comprehensive set of mitigation measures designed to minimize environmental impacts during construction and operation of the Proposed Action. These include erosion and sediment controls such as silt fencing and site stabilization; surface-water protection through a Stormwater Pollution Prevention Plan and careful handling of hazardous materials; and air-quality protection using dust-suppression methods. Measures to prevent the spread of invasive species (i.e. equipment cleaning and use of weed-free materials) are also required, along with protections for migratory birds through seasonal timing or pre-construction nest surveys. Mitigation measures include restoring disturbed visual resources through revegetation and ensuring cultural resources are protected via surveys and avoidance or minimization strategies, all carried out in compliance with applicable federal, state, and local regulations.

Significant Impact Considerations

Significant impact considerations took into account the analysis and evidence provided in the "Environmental Review" section of the Environmental Impact Statement. I used this information to reach the following conclusions:

In accordance with NEPA's requirement to evaluate and balance both the short-term and long-term consequences of federal actions, NRCS carefully considered the tradeoffs between the immediate adverse impacts associated with implementing an action alternative and the long-term adverse or beneficial outcomes that would result from taking no action. Although the No Action Alternative would yield the greatest long-term environmental benefits through natural recovery of streamflow, aquifer levels, and habitat conditions, NRCS determined that these gains would come at the cost of severe and enduring socioeconomic harm to the agricultural communities within the Rattlesnake Creek subbasin. The No Action Alternative would impose substantial and prolonged reductions in irrigation water availability, resulting in significant declines in regional farm income, economic stability, and rural livelihoods. By contrast, the Proposed Action—incorporating an augmentation wellfield and targeted groundwater use reductions—would generate limited and localized short-term adverse impacts associated with construction and hydrologic disturbance, but would avoid the widespread, long-term economic disruptions inherent under No Action while still providing meaningful, sustained improvements to water availability for Quivira National Wildlife Refuge. In weighing these considerations, NRCS concluded that the Proposed Action offered the most appropriate balance of environmental protection, economic viability, and long-term public benefit, thereby satisfying NEPA's directive

to consider both present and future conditions in identifying a prudent and responsible course of action.

There would not be any irreversible or irretrievable commitment of Federal resources as a result of this project.

Other Factors Influencing the Decision

In developing the Rattlesnake Creek Watershed Plan–EIS, NRCS evaluated each alternative not only in terms of its immediate effects but also its long-term ecological, economic, and social implications. A major part of this evaluation involved comparing the short- and long-term adverse impacts of the action alternatives with the long-term adverse or beneficial outcomes associated with taking no action.

Under the No Action Alternative, NRCS recognized substantial long-term environmental benefits, including the recovery of streamflow, improved aquifer conditions, and enhanced ecological function within Quivira National Wildlife Refuge. However, these long-term gains came with significant and immediate economic harm, including large reductions in irrigation water availability, major losses in farm income, and foreseeable hardships across the broader agricultural economy. Although the No Action Alternative was considered the environmentally preferable option, NRCS concluded that its severe and enduring economic consequences would disproportionately burden local communities and undermine regional agricultural stability.

The Proposed Action (Augmentation Wellfield and Groundwater Use Reduction Alternative) offered a different balance of tradeoffs. NRCS acknowledged that constructing and operating an augmentation wellfield would introduce short-term adverse impacts, such as ground disturbance, infrastructure installation, and local hydrologic changes near the wellfield. However, these impacts were partially temporary or geographically limited. In contrast, the long-term consequences of the action alternative were more balanced: it would provide a reliable supplemental water source for Quivira NWR, moderate groundwater depletion through targeted reductions, and prevent widespread and lasting economic losses that would result under No Action.

A key factor in NRCS’s reasoning was the recognition that irreversible regional economic decline under No Action would persist for decades, while short-term impacts from the action alternative were manageable and mitigable. Moreover, the Proposed Action enabled adaptive management, allowing adjustments to pumping and water-right retirements over time—an option that supports long-term sustainability rather than forcing immediate, large-scale reductions.

Ultimately, NRCS determined that the No Action Alternative’s environmental benefits did not outweigh its severe long-term socioeconomic costs. Conversely, the Proposed Action offered a workable compromise: it maintained agricultural viability, addressed the legal and ecological needs of Quivira NWR, and offered a flexible path toward long-term water sustainability. By carefully comparing the permanence, scale, and distribution of impacts, NRCS concluded that the Proposed Action best balanced the competing demands of environmental protection and economic resilience, making it the most practical and publicly beneficial path forward.

Anticipated Implementation of Authorized Activities

I intend to implement the approved activities over the next several years, with an intent to complete implementation by the end of 2030.

Signature and Authorization Date

Chad G. Volkman NRCS State Conservationist (acting)

5/1/2026

CHAD VOLKMAN Digitally signed by CHAD VOLKMAN
Date: 2026.04.30 07:57:35 -05'00'

Attachment 1

Summary of Comments Received on the FEIS with Responses

TABLE OF CONTENTS

NRCS received comments from three organizations on the Rattlesnake Creek Watershed Plan Final Environmental Impact Statement (FEIS). Responses to these comments were grouped by theme and a summary of the comments are provided along with a response below. Responses represent NRCS' consideration of comments; however, no changes were made to the FEIS.

Regulatory Framework

Comment Summary

The FEIS was released over six months after the U.S. Department of Agriculture (USDA) implemented new National Environmental Policy Act (NEPA) regulations on July 3, 2025. As of January 8, 2026, the Council on Environmental Quality (CEQ) rescinded all previous versions of its NEPA implementing regulations, following the rescission of Executive Order 11991. The FEIS was issued a week after CEQ's final rule, on January 15, 2026. Given these regulatory changes, the commenter requests clarity on which framework governs the FEIS: does it follow the statutory provisions of NEPA as amended by the Fiscal Responsibility Act of 2023 and USDA's own updated regulations at 7 Code of Federal Regulations (CFR) part 1b, or does it still rely in any way on the rescinded CEQ regulations?

Response

This environmental document was initiated using the 40 CFR 1500-1508 (2020 CEQ NEPA regulations) and 7 CFR 650 regulations. These regulations have recently been rescinded and replaced with USDA regulations found under 7 CFR 1b. However, in a good-faith effort to fulfill NEPA's requirements, including Congressional timeline and considerations of fiscal restraints, the agency decided to continue to use 40 CFR 1500-1508 (2020) and 7 CFR 650. This is permissible per the USDA policy guidance issued in the Interim Final Rule's preamble. The Federal Register notice said: "To ensure an orderly transition without undue impact on the USDA mission, USDA subcomponents have discretion to continue using the versions of USDA and agency-specific NEPA regulations in place before publication of this interim final rule, as well as the 2020 version of the CEQ NEPA regulations, where it makes sense for proposals that are at a certain stage in the applicable NEPA process (categorical exclusion, environmental assessment, or environmental impact statement)." 90 FR 29644 (July 3, 2025). In the NRCS's expert opinion, it has thoroughly considered the factors mandated by the statute and the regulatory frameworks it used; and that, in the responsible federal official's judgment, the analysis contained herein is adequate to inform and reasonably explain findings regarding the proposed action and selected alternative.

Adaptive Management Plan

Comment Summary

The Adaptive Management Plan (AMP) sets up several governance mechanisms, including an Adaptive Management Committee (AMC) and a Science AM Subcommittee, as well as establishing quarterly and annual meetings, a requirement for super-majority voting on certain issues, and a formal dispute resolution process (as outlined in FEIS Appendix D, Sections 3.1–3.2).

The establishment of the AMC effectively introduces a new administrative body with oversight or authority within the Rattlesnake Creek Basin. However, this administrative authority is not explicitly provided for under Kansas state law. According to the Kansas Supreme Court in Clawson v. Kansas Department of Agriculture, 315 P.3d 896, 905, Kansas administrative agencies possess only those powers specifically granted to them by statute and have no inherent or common-law powers. As a result, the authority claimed by the AMC may not have legal standing unless specifically authorized by legislative action.

Response

The AMC and all subcommittees will remain in compliance with all local, state and federal laws. The AMP and the AMC represent a voluntary, collaborative framework designed to address evolving environmental and resource management challenges in the Rattlesnake Creek Watershed. By utilizing ongoing monitoring and the collection of new scientific data, the AMP and AMC aim to systematically evaluate new information and adapt management strategies accordingly. This process will enable stakeholders (including community representatives, scientists, and agency officials), to participate actively in discussions and contribute to decision-making, ensuring that actions taken are grounded in the latest scientific evidence.

Where appropriate, the AMP or its subcommittees may vote on any adjustments to the selected project to inform operational adjustments consistent with the selected alternative and applicable authorities. The Kansas Department of Agriculture (KDA) would serve as one of multiple Committee members. The state agency will neither have full jurisdiction over the selected project or the ability to unilaterally adjust the project through the adaptive management process. It is NRCS' view that KDA would not be forming a new administrative body for purposes of its role in the adaptive management committee. We trust that KDA will remain mindful of the breadth and boundaries of its authority under state statutes and interpretive judicial holdings through the course of its participation in the adaptive management committee.

To the extent that any member of the AMC identifies an issue in the AMP process, the dispute resolution procedure embedded within the AMP/AMC framework is intentionally structured to allow for flexibility. If consensus cannot be reached, the process may result in no action being taken, which protects participants from being compelled into actions they do not support or cannot legally implement. This aspect preserves the voluntary nature of the AMP/AMC and respects the autonomy of each stakeholder, reinforcing that participation and outcomes are based on agreement rather than imposed directives.

Importantly, while the AMP and AMC provide a platform for collaborative management, all decisions and recommendations must comply with applicable federal, state, and local laws and regulations. The legal framework serves as a boundary for the AMP/AMC’s activities, ensuring that any proposed actions are lawful and consistent with established statutory requirements. This safeguard integrates regulatory compliance into the adaptive management process, further legitimizing the decisions made and protecting the interests of all parties involved.

Environmental Consequences – Impact Reassessment

Comment Summary

The FEIS revises the comparative impact tables for the alternatives (FEIS Table 6.0, at page 151; Table 8.1.2, at page 267). Additional explanation was requested regarding why revisions to the impact rating occurred.

Response

The comparative impact tables were updated based on comments received during the Draft EIS process. Commenters pointed out discrepancies in how degree of impact was applied. The degree of impact definitions from the FEIS are provided below.

- **No Effect**: There would be no measurable or perceptible impact.
- **Negligible Effect**: The impact would be inconsequential and barely perceptible.
- **Minor Effect (short-term)**: The impact would be measurable or perceptible but would be slight and would only affect a limited area of a resource or group of resources over a limited period of time.
- **Minor Effect (long-term)**: The impact would be measurable or perceptible, but would be slight and would only affect a limited area of a resource or group of resources over an extended period of time.
- **Moderate Effect**: The impact would be measurable and perceptible.
- **Major Effect**: The impact would be substantial, noticeable, and permanent.

The degree of impact definitions described above were not changed between the Draft EIS and the FEIS, rather how they were applied to specific resources received modifications based on Draft EIS comments. The Draft EIS commenters did not provide new information, rather pointed out discrepancies that NRCS agreed needed to be adjusted. The adjustments were made for consistency across all alternatives and all resources.

On-Refuge Infrastructure

Comment Summary

The infrastructure and management objectives for Quivira National Wildlife Refuge (Quivira NWR; the refuge) are described in FEIS Section 1.1 (pages 20–22) and Section 4.10.5 (pages 105–107), including a map of water-control structures (Figure 4.10.5, page 105). The FEIS acknowledges that the refuge relies on a complex network of structures and that water levels are actively managed for habitat. However, the FEIS's alternatives section (FEIS Section 5.1–5.4, pages 130–147) does not include a stand-alone alternative focusing on upgrading, repairing, or re-operating Quivira's internal infrastructure. Additionally, the FEIS Section 5.1 ("Alternatives Considered but Eliminated from Detailed Study," pages 131–132) does not identify "on-refuge infrastructure improvements" as a fully developed alternative.

The No Action Alternative overshoots the necessary water delivery to the refuge by an average of 17,820 acre-feet per year. This results in junior water rights being curtailed to produce water that simply flows out of the basin unused.

Response

FEIS Section 2, purpose and need states, “The purpose of the Rattlesnake Creek Watershed Plan – EIS is to provide for long-term, sustainable agricultural water management within the Rattlesnake Creek subbasin of Groundwater Management District #5 (GMD #5), including project components, to meaningfully address the impairment at Quivira NWR.” The FEIS further states that, “For the purposes of the Plan – EIS, ‘sustainable agricultural water management’ is defined as surface and groundwater use that can be maintained consistent with water rights and the economic viability of the region’s agriculture.”

The Conservation of Water at Quivira NWR alternative (FEIS Section 5.1) includes improving existing infrastructure at Quivira NWR, an infeasible action since NRCS does not exercise regulatory authority over Quivira NWR. More significantly, this alternative does not meaningfully address the water right impairment as determined by Kansas Department of Agriculture – Division of Water Resources (KDA-DWR). Accordingly, this alternative was eliminated from further consideration since it did not meet the purpose and need, see FEIS Section 5 screening criteria. FEIS comments received related to Quivira NWR infrastructure improvements question whether Quivira NWR’s water right is needed. The FEIS recognizes KDA-DWR as the authority for Kansas water law and the KDA-DWR 2016 Impairment Report and 2023 Supplement to the 2016 Impairment Report as the best available information on the Quivira NWR water right impairment issue.

Reasonable Range of Alternatives

Comment Summary

The FEIS failed to analyze the on-refuge infrastructure alternative that was suggested in a previous comment. Thus, commentors state that a reasonable range of alternatives was not evaluated. As mentioned above, a component of the purpose and need was to meaningfully address Quivira NWR’s water right. Alternatives that could not meaningfully address Quivira NWR’s water right were not carried forward for detailed evaluation.

Response

See FEIS Section 5.1–5.4 (Alternatives) and FEIS Section 5.1 (Alternatives Considered but Eliminated), which explains why on-refuge infrastructure changes do not meet the purpose/need and were not carried forward for detailed analysis.

Prohibition on Waste of Water / Beneficial Use

Comment Summary

Kansas law prohibits waste of water and states that water rights must have a beneficial use pursuant to K.S.A. 82a-707 and related statutes. Before the Chief Engineer may order

curtailment of any water right for impairment, Kansas law requires a showing of actual impairment. See Garetson Bros. v. Am. Warrior Inc., 347 P.3d 687, 696 (Kan. App. 2015) (noting requirement for investigation of impairment); K.A.R. 5-4-1(b) (same). If the alleged impairment at Quivira NWR is driven partly by internal waste or infrastructure deficiencies that the FEIS alternatives ignore, subsequent curtailments or takings of upstream rights based on the FEIS's analysis would be improper.

The Kansas impairment framework also requires return-flow evaluation and prohibits increases in net consumptive use. See K.S.A. §§ 82a-708b, 82a-711(c). The FEIS acknowledges Kansas water law but fails to analyze these controlling requirements in the context of Quivira NWR infrastructure, leaving its treatment of impairment, waste, and reasonable use (if any) legally insufficient.

Response

The FEIS recognizes KDA-DWR as the authority with Kansas water law and the KDA-DWR 2016 Impairment Report and 2023 KDA-DWR Supplement to the 2016 Impairment Report as the best available information on the Quivira NWR water right impairment.

NRCS consulted with KDA pursuant to 42 U.S.C. Section 4332(2)(C) to coordinate and assist in analyzing compliance with state laws, as well as to determine where there may be inconsistencies between federal and state law. KDA has jurisdiction over return-flow evaluation and increases in net consumptive use in compliance with K.S.A. Section 82a-708b, 82a-711(c) and K.S.A Section 82a-706. NRCS has consulted with KDA throughout this EIS process and will continue to rely on KDA's analysis of return-flow evaluation and increases in net consumptive use as it relates to compliance with state law.

The FEIS discloses Kansas water-law context and defers determinations on waste, return-flow, and impairment to KDA-DWR, which administers the Kansas Water Appropriation Act. NRCS coordinated with KDA-DWR during FEIS development; state law compliance occurs in KDA-DWR’s permitting/administration processes, not within the FEIS decision.

GMD #5 Modeling Issues (MDS, Equilibrium in Stream Depletion, Salvaged Evapotranspiration, Quivira Impairment)

Comment Summary

The FEIS does not present new model runs addressing comments provided on minimum desirable streamflow (MDS), lack of available water for appropriation in the augmentation source basin, equilibrium in stream depletion, or salvaged evapotranspiration; or document any physical impairment investigations at Quivira (metering, seepage, impoundment loss studies, etc.).

- Recommended that the GMD #5 model receive independent peer review.

- Recommend that NRCS follow Kansas rulemaking procedures for model updates, consistent with the approach taken for prior editions of the GMD #5 model, to ensure transparency and procedural regularity.
- Recommended that structural and calibration concerns provided with the DEIS on the GMD #5 model be addressed.
- Document and make publicly available the standards used in the 2023 technical updates to the 2010 Balleau groundwater model (GMD #5 Model).
- Recommend that the 2023 model updates incorporate analysis of water availability in relevant subbasins and account for Minimum Desirable Streamflow (MDS) requirements on the North Fork of the Ninnescah River.
- Recommend that the model's stream depletion assumptions are updated to reflect recent peer-reviewed analyses and field measurements indicating that depletion may have reached equilibrium, which would provide more accurate predictions of future impairment.
- Recommend that the "Risk and Uncertainty" discussion address the model-specific issues we raised in our June 2, 2025, comments and include a commitment to pre-implementation validation.
- The FEIS references MDS and streamflow declines but does not conduct an MDS-specific analysis of the augmentation proposal or the proposed retirements.

Response

The Balleau model has been peer reviewed by KDA-DWR and is based upon and accepted as using the best available data regarding groundwater modeling in GMD #5. NRCS recognizes the inherent risk and uncertainty that a future projecting model presents. KDA-DWR has cited the Balleau model in their 2016 and 2023 impairment reports. KDA-DWR is recognized as the authority in Kansas Water Law and the FEIS does not contest their findings. Regarding specific points:

Lack of Water/MDS
The FEIS recognizes the following from Section 8.4:

> *The KDA-DWR Water Appropriation program administers the Kansas Water Appropriation Act pertaining to the management of water resources. This program issues permits to appropriate water, regulates water use, and maintains records of all water rights in the state. A water appropriation permit is required for the construction of a water well or withdrawal of surface or groundwater. Multiple permits will potentially be needed based on wellfield configuration and location of water withdrawals.*

MDS is described in FEIS Section 1.3 and related to the North Fork Ninnescah in FEIS Section 6.9.2. In summary, a review of USGS gage records indicates that the North Fork Ninnescah River has not met MDS approximately 5.1 percent of the time from October 1990 through December 2023. Adding the 54-year average depletion of 2.2 cfs from the expanded wellfield

would increase that percentage by less than 2 percent; adding the maximum depletion of 8 cfs over the 54-year simulation results in not meeting MDS 13.1 percent of the time (an increase of 8 percent). It is important to note that a maximum depletion simulation is a worst-case scenario and not a typical representation of projected long-term depletions.

NRCS includes consideration in the FEIS regarding how Kansas Water Law impacts the Proposed Action Alternative (PAA) and the No Action Alternative. As stated in the FEIS, the MDS statute further allows for streamflow augmentation as an option for replacement of diverted flows, specifically within the Rattlesnake Creek subbasin, if augmentation is feasible and voluntary (K.S.A. 82a-706b). While MDS administration and impairment are within the jurisdiction of KDA-DWR, (K.A.R. 5-4-1b; 5-15-1), the FEIS addresses Kansas Water Law, including the augmentation wellfield's impacts on MDS, and appropriation which impacts impairment of water rights in the region. See FEIS Section 6.9.2 (discussion of MDS impacts at p. 202; discussion of water rights and retirement of certain junior pumping rights at p. 202-205).

Equilibrium in Stream Depletion

In the analysis completed for the FEIS, and in studies completed by KDA-DWR, it is known that groundwater pumping in GMD #5 is hydraulically connected to Rattlesnake Creek. In general, equilibrium in stream depletion from groundwater pumping is achieved when the depletion to the stream from said pumping reaches its maximum. Before groundwater pumping occurred, the stream existed in predevelopment equilibrium (with variability in climate and in seasonal flows). After groundwater pumping was developed in the 1940s, the interaction of groundwater with the stream began to approach developed equilibrium (with variability in climate and in seasonal flows). To clarify how the 400 acre-feet per year (AFY) of continued depletion fits into the context of developed equilibrium in stream depletion with an example. Consider the No Action Alternative, which considered curtailment of an average of approximately 80,000 AFY of net pumping (well diversions less deep percolation return flow). That pumping has historically had a depletion effect on Rattlesnake Creek. The 400 AFY of continued stream depletion is less than 1 percent of that pumping, which indicates that most of the stream depletion from the pumping has already occurred (i.e., the depletion to Rattlesnake Creek from pumping cannot grow to exceed the pumping). In general, the interaction of groundwater pumping with Rattlesnake Creek is in a state of approaching equilibrium, but with variability in climate and seasonal flows it is difficult to determine absolute equilibrium, as described below.

Climate and seasonal variability result in changes to the active stream length, which results in variation in stream depletion, even when the system reaches a state of equilibrium. Variation in stream depletion occurs because during wetter than average years, runoff and recharge activate groundwater interaction in Rattlesnake Creek to lengthen the active river reach resulting in greater river depletion because there is more river length to deplete. Similarly, in drier than average years, there is less Rattlesnake Creek depletion from pumping because there is less river length to deplete. If the FEIS model runs were simulated with the model running in a time mode of a long-term average annual condition, then much of this variation in depletion would not occur and absolute equilibrium would be easier to assess (as shown in Figure 53 of the Balleau model report). The model simulations in the FEIS operate with a time

mode of monthly (seasonal) variations so that the associated hydrologic effects can be characterized in a way that is more refined than with steady long-term averages.

Salvaged Evapotranspiration
The model representation of evapotranspiration (ET) is based on an approach which consists of implementing a concept in a simple form that adds detail if it is needed during model calibration. The simulated ET involved deriving a reference crop evapotranspiration (ET0) based on the method of Hargreaves (Hargreaves, 1985; Allen and others, 1998) with a variable rate based on subtracting monthly precipitation and runoff from ET0. Within GMD #5, marsh areas on topographic maps and ET areas visible on LANDSAT imagery along streams to characterize areas where ET is observed were reviewed. During model calibration, it was determined that a straightforward adjustment to the elevation of the ET surface resulted in a reasonable match to observed ET areas on LANDSAT imagery, and this adjustment simultaneously improved the river baseflow calibration at Zenith gage and Quivira Refuge. Given the development approach of the ET model, the described systematic adjustments, and simulated results, the model was considered calibrated.

A basic sensitivity analysis of ET extinction depth found that it is a sensitive factor, as is expected when modeling shallow groundwater on the High Plains (i.e., a small change in elevation results in a change over a large area on the topography of the High Plains that lacks significant hills or slopes).

Questions on simulation of ET and salvage of ET from groundwater pumping are not unique to the model analysis herein. The amount of ET salvaged by groundwater pumping is evaluated in many groundwater models used in settings of regional water planning and groundwater development. Given that ET is a significant part of the regional water budget, it is included in the model.

Quivira Impairment Investigation
The FEIS recognizes KDA-DWR as the authority with Kansas water law and the KDA-DWR 2016 Impairment Report and 2023 Supplement to the 2016 Impairment Report as the best available information on the Quivira NWR water right impairment.

Adjacent Watersheds and Wetland/Stream Analysis

Comment Summary

Watersheds
The FEIS does not yet address impacts of the project on adjacent watersheds.

The Watershed Plan seeks a static flow of 5,580 AFY to supply unmet monthly demand for Quivira NWR which is not realistic given the natural hydrological realities of the watershed. The Quivira National Wildlife Refuge is not a natural system. Before initial diversion decades ago it was a regular occurrence that the Little Salt Marsh regularly dried up completely. The extensive water control system is designed to maximize hydro-periods, not static flow to guarantee maximum quantity of water diverted on a given year.

Response

Figure 3.0 in the FEIS (Chapter 3) shows that the scope of the project covers multiple watersheds, including adjacent watersheds. Analysis of multiple adjacent watersheds is detailed in Chapter 6 (Environmental Consequences and Cumulative Impacts) in the FEIS. This includes analyzing potential impacts to the North Fork Ninnescah River and Peace Creek which are both in adjacent watersheds.

The watershed plan does not seek a static flow of 5,580 AFY. The watershed plan does assume that the future annual pumping could be 5,580 AFY on average, in order to evaluate the potential impacts of pumping. This is based on "a future modeled baseline condition, an augmentation capacity of up to 18 cfs, and the seasonal water demands at Quivira NWR" (FEIS Section 6.2.2). However, the actual pumping of augmentation water would depend on actual climatic conditions. Some years could require significantly more than 5,580 AFY, and other years could require significantly less, even zero, augmentation pumping.

Comment Summary

NWI Data
Recommended to incorporate the high-quality aerial imagery analysis recommended by Ducks Unlimited to supplement the National Wetlands Inventory (NWI) data, which Ducks Unlimited noted may underestimate wetland presence and size.

Response

U.S. Fish and Wildlife Service (USFWS) NWI data is considered the best available data and is extensively used for desktop wetland assessments.

Comment Summary

Intermittent Streams
Given that the agency's modeling projects a maximum drawdown level of 10 feet in the vicinity of the wellfield, we also recommend conducting additional analysis of how this drawdown might affect dry periods in intermittent systems and species composition.

Response

FEIS section 6.9.2 states:

- *"Wellfield operation during dry periods would have no impact to flow in Peace Creek because the stream is intermittent, and no flow would typically be in Peace Creek during dry periods."*
- *"A complete loss in hydrology and subsequent wetland losses are not anticipated. Wetlands receiving hydrology from adjacent streams would incur the greatest hydrologic impacts if they are located along Peace Creek. However, even along Peace Creek, flows are anticipated to be maintained and not incur a loss. Thus, wetlands receiving hydrology from Peace Creek are anticipated to have changes in species composition but*

no loss of hydrology. These changes in hydrology could result in prolonged dry periods and a reduction in total water available."

- *"The magnitude of wetland impacts will vary based on each individual wetland's hydrology. Wetlands that receive hydrology primarily from surface precipitation, runoff, or ephemeral streams would be impacted the least. Wetlands that receive hydrology from groundwater discharge will be impacted the most in areas with 5 to 10 feet of drawdown and may see minor impacts in areas with 0.5 to 2.0 feet of drawdown. Wetlands that receive hydrology from adjacent streams would be impacted the most in the vicinity of Peace Creek and may receive minor impacts near other intermittent or perennial streams (i.e., Rattlesnake Creek and North Fork Ninnescah River)."*

Failure to Respond to Significant Comments

Comment Summary

Appendix A's DEIS Comment Summary aggregates "agriculture and industry" comments and notes broad support for augmentation (FEIS App. A, DEIS Comment Summary, Section 3.3.4, at 377), but it does not grapple with our specific change-based alternative. Agencies must respond to significant comments that present reasonable alternatives with substantive engagement, not mere acknowledgment or aggregation. See 42 U.S.C. Section 4332(H); 7 C.F.R. 650.11(b)(3)(v); Pit River Tribe v. U.S. Forest Serv., 469 F.3d 768, 785 (9th Cir. 2006) (agency must respond to comments raising significant problems). Failure to provide a reasoned response to our June 2, 2025, alternative proposal is arbitrary and capricious under 5 U.S.C. Section 706(2)(A).

Response

FEIS Section 2 describes the project's Purpose and Need, which is to provide long-term, sustainable agricultural water management within the watershed and to meaningfully address Quivira National Wildlife Refuge's impaired senior water right as identified in the Kansas Department of Agriculture–Division of Water Resources 2016 impairment report.

FEIS Section 5 describes the alternatives developed to meet the Purpose and Need and the screening criteria used to evaluate them. Alternatives that did not meet one or more screening criteria were not carried forward for detailed analysis. NRCS reviewed the commenter's June 2, 2025, proposal as part of its evaluation of DEIS comments.

Summary of the Commenter's Proposal:
The commenter proposed improving infrastructure at Quivira NWR and relying on voluntary acquisition or modification of existing water rights, including adding recreational water use or shifting Quivira's water rights from surface to groundwater. The commenter also suggested reallocating project resources toward voluntary conservation, easements, and other incentive-based measures.

Evaluation of the Proposal:
As described in previous responses, NRCS does not have authority to require the USFWS to implement on-refuge infrastructure improvements. GMD #5 intends to pursue voluntary acquisition of water rights wherever feasible; however, voluntary measures lack permanence and enforceability and therefore cannot be relied upon to meaningfully address the impairment at Quivira NWR. Additional voluntary or compensated conservation measures were evaluated, but due to the uncertainty in their long-term effectiveness and the lack of their empirically measurable hydrologic benefits to Rattlesnake Creek or Quivira NWR, they were not included in the action alternatives. Such measures may be explored through adaptive management.

NRCS evaluated the commenter's proposal using the same screening criteria applied to all alternatives. The proposed change-based alternative did not meet the FEIS screening criteria because it would not meaningfully address the Quivira NWR water right impairment and therefore did not meet the project's Purpose and Need.

NEPA requires agencies to consider and respond to significant comments; however, it does not require detailed analysis of alternatives that do not meet the Purpose and Need. The FEIS meets these requirements through its documented consideration of the commenter's proposal and the application of established screening criteria.

State and Constitutional Claims

Comment Summary

At the state level, if GMD #5 implements forced retirements and curtailments without adequate consideration of voluntary tools (LEMA, IGUCA, easements, stewardship agreements), affected members may claim that the state chose an unnecessarily intrusive means of achieving its goals.

Response

GMD #5's approach prioritizes the acquisition of water rights through voluntary purchases wherever feasible. GMD #5 does possess eminent domain authority, as is required under the NRCS P.L. 83-566 program (7 CFR 622.10). The primary objective of GMD #5 is to secure the water rights for implementation of the project voluntarily whenever possible.

KDA-DWR serves as a cooperating agency and has actively contributed to the process, including the evaluation of reasonable alternatives and the proposed course of action. Furthermore, a KDA-DWR appropriation permit would be obtained to establish any new water right. As noted in FEIS Section 1.4, voluntary measures such as Local Enhanced Management Areas (LEMAs) and partnership agreements have been implemented over the past 25 years.

Comment Summary

When the administrative record (including this FEIS) demonstrates that the agency refused to analyze or adopt feasible, less burdensome alternatives, the resulting regulatory action is

vulnerable to challenge as arbitrary, oppressive, and violative of substantive due process under both the U.S. Constitution (Fifth and Fourteenth Amendments) and the Kansas Constitution (Bill of Rights Section 18). Additionally, under the Kansas Private Property Protection Act (K.S.A. 77-701 et seq.), any state or local government action that limits the use of private property and reduces its fair market value may constitute a compensable regulatory taking. K.S.A. 77-702(e). An ensuing failure to prepare an economic impact report required by K.S.A. 77-703 before implementing significant water-use restrictions would also be independently unlawful and would support claims for invalidation of the underlying regulatory action.

Response

NEPA requires federal agencies to evaluate a reasonable range of alternatives that can meet the stated purpose and need of the proposed federal action. As documented in the FEIS, alternatives for the Rattlesnake Creek Watershed Plan were developed through public and agency scoping and in consultation with cooperating agencies. Each alternative was screened against three criteria to determine whether it could meet the project's purpose and need, see FEIS Section 5.

Alternatives that did not meet one or more of these screening criteria were determined not to achieve the project's purpose and need and were not carried forward for detailed evaluation. This alternatives development and screening process is fully documented in the FEIS and satisfies NEPA's requirements for evaluating reasonable alternatives.

The remainder of the comment raises legal issues regarding constitutional and state-law challenges. Such legal questions are outside the scope of NEPA and do not require a detailed response in the FEIS or this Record of Decision (ROD). The comment does not identify deficiencies in the environmental analysis or the alternatives evaluation documented in the FEIS. Accordingly, no changes to the FEIS or this ROD are warranted.

As stated in the FEIS Section 5.3, NRCS will prioritize voluntary acquisition before condemnation, will quantify affected parcels and water rights, will ensure actions are consistent with applicable federal requirements, including 16 U.S.C. 1002 and NWPM Section 504.3, and will ensure compliance with Kansas Private Property Protection Act (KPPPA) requirements as applicable.

The threshold inquiry under KPPPA is whether a governmental action occurs, such that there could potentially be a taking. The KPPPA applies to certain governmental actions only (e.g., proposed legislation, proposed rules and regulations, and proposed agency guidelines and procedures concerning issuance of license and permits), therefore, KPPPA does not apply. Under K.S.A. 77-702(b), the FEIS is not a state "governmental action," and K.S.A. 77-703(b)(2)(A) expressly excludes eminent domain actions from that definition. Therefore, no KPPPA taking assessment report is required. Accordingly, an economic impact report as required under K.S.A. 77-706 and 77-416 is not required because the proposed agency action is not a governmental action.

Comment Summary

Appropriated Water Rights
State whether the augmentation field will rely upon newly appropriated water rights or changed water rights already in existence.

Response

The augmentation wellfield will require new appropriations. As stated in the FEIS Section 6.9.2, GMD #5 will need KDA-DWR Water Appropriation Permits for the augmentation pumping.

Comment Summary

Anti-Speculation Doctrine
Comments raise the concern that Kansas law also incorporates the anti-speculation doctrine, forbidding the expansion of water use beyond demonstrable need. The comment argues that Kansas law prohibits increased water use beyond established needs, and notes the FEIS fails to evaluate whether its augmentation plan would violate these laws by increasing consumptive use or reducing return flows, rendering its alternatives analysis insufficient.

Response

NRCS acknowledges the comment regarding the anti-speculation doctrine under Kansas law, which prohibits the expansion of water use beyond demonstrable need. The FEIS recognizes that all water-related actions proposed under the PAA must comply with applicable state laws, including the anti-speculation doctrine and other water rights requirements. The NRCS does not have the authority to allocate, expand, or modify water rights; those authorities and determinations rest with KDA-DWR.

The FEIS evaluates potential effects of the augmentation wellfield within the scope of NEPA by disclosing possible impacts and identifying the regulatory framework governing water rights in Kansas. Any proposed augmentation or changes to water use would be subject to review and approval by KDA-DWR, who is responsible for ensuring that actions do not violate the anti-speculation doctrine or result in unauthorized increases in consumptive use or reductions in return flows. The FEIS does not authorize any water use beyond what is permitted under existing law and does not supersede state-administered water rights processes.

The project sponsor has considered KDA-DWR's permitting process under K.S.A. 82a-701 et seq. in evaluating the feasibility of the PAA, including whether the PAA would violate statutory constraints. The project sponsor has further engaged in informal consultation with KDA-DWR during the development of the DEIS to better understand the specific procedural and substantive elements required to obtain for necessary term, change in use or other permits to implement the PAA if selected.

NRCS has complied with NEPA by assessing the environmental impacts of the alternatives and consulting with KDA-DWR regarding adherence to Kansas water law, including the anti-speculation doctrine. Should any future actions require changes to water use or rights, such

actions would require separate state-level review and compliance with all statutory and regulatory requirements outside the scope of the FEIS.

Comment Summary

The FEIS also assumes that USFWS holds a valid water right, a position that directly conflicts with materials previously published by GMD #5 and referenced in our comment on the EA.

Response

The FEIS recognizes KDA-DWR as the authority with Kansas water law and the KDA-DWR 2016 Impairment Report and 2023 Supplement to the 2016 Impairment Report as the best available information on the Quivira NWR water right impairment.

Comment Summary

Comments were provided related to the KDA-DWR appropriation permit that will be needed and that is referenced in FEIS Section 8.4. Comments included:

- How augmentation rights will be obtained and whether it is a new appropriation or change to existing water right.
- Whether the pumping will interact with MDS enforcement and impairment standards under Kansas law.
- Kansas Bill of Rights protections for private property and the constitutional right to hunt and fish.

Response

The FEIS identifies that implementation of augmentation pumping will require new water appropriations issued by KDA-DWR. Any such permits would be processed under Kansas law, and permitting decisions rest with the Chief Engineer. The permit application was not submitted prior to publication of the FEIS because the Agency decision document was not complete.

The FEIS also relies on KDA-DWR's impairment findings and hydrologic information to address questions related to MDS and water rights administration. These topics are discussed in FEIS Section 8.4 and supporting materials.

Comments raised several questions regarding Kansas constitutional provisions. The FEIS/ROD does not make legal determinations on these issues. GMD #5 asserts that any future actions by the project sponsor related to water rights acquisition or administration—including voluntary transactions or actions taken under K.S.A. 82a-1028(f)—would be carried out by the sponsor in accordance with applicable federal and state law, including requirements for due process and just compensation where relevant.

Comment Summary

Takings
Comments received state that implementation of the FEIS presents a risk of unconstitutional takings of vested property rights, particularly water rights protected under both Kansas and federal law. They argue that the FEIS does not adequately evaluate or mitigate the potential for regulatory takings arising from water-rights curtailments, forced retirements, or property acquisition associated with the preferred alternative. Water rights reductions based on alleged impairment may constitute takings without just compensation or due process, especially where impairment may be driven by waste or infrastructure deficiencies at Quivira National Wildlife Refuge rather than upstream use. Kansas law requires waste to be eliminated and impairment to be fully investigated before upstream rights may be curtailed, and that failure to do so renders resulting restrictions arbitrary, capricious, and constitutionally suspect.

The point is also raised that groundwater curtailments approaching elimination of irrigated agriculture could satisfy both regulatory and categorical takings standards under established constitutional doctrine, particularly where the FEIS fails to rigorously evaluate less restrictive alternatives. Concerns are also raised regarding eminent domain, with the commenters asserting that the FEIS does not adequately analyze the scope, legality, or necessity of condemnation under P.L. 83-566 or applicable Kansas law.

Comments also challenge the characterization of retirements and acquisitions as voluntary, asserting that the threat of curtailment under the No Action Alternative creates a coercive framework that undermines voluntariness and increases takings risk. They urge NRCS to explicitly analyze takings, eminent domain constraints, and state property-rights protections, and to prioritize voluntary, less intrusive conservation tools to reduce constitutional and legal exposure.

Response

NRCS acknowledges comments asserting that implementation of the PAA could implicate property rights, including water rights and real property interests. These concerns have been carefully considered within the NRCS's limited scope of authority under NEPA and the Watershed Protection and Flood Prevention Act (P.L. 83-566).

NRCS's authority under P.L. 83-566 is limited. Section 1002 of P.L. 83-566 and implementing guidance in the NRCS National Watershed Program Manual strictly constrain the use of federal funds for real property acquisition and eminent domain. Federal funds appropriated under this authority may not be used to acquire land or water rights through condemnation except where expressly authorized by law, and only for qualifying "works of improvement." As described in the FEIS and the Watershed Agreement framework, the Project Sponsor—not NRCS—is responsible for any acquisition of real property interests necessary for project implementation, and such actions must comply with all applicable federal and state laws, including requirements for voluntary acquisition, necessity determinations, and just compensation.

The FEIS discloses that any such actions to acquire land or water rights will be carried out by GMD #5 in accordance with federal and state law for the project and that any future acquisition

actions would require separate approvals, documentation, and compliance with applicable legal requirements outside the NEPA process (FEIS Section 8.5). Any state-level actions related to water-rights administration, impairment determinations, or curtailment are governed by Kansas law and are implemented by state authorities, not NRCS. The FEIS does not alter existing water rights priorities, does not authorize enforcement actions, and does not substitute for state regulatory processes.

NRCS has taken a hard look at environmental impacts, disclosing potential effects, and considering reasonable alternatives within the limits of its statutory authority. Issues related to property acquisition, eminent domain, compensation, or takings are governed by applicable state law and would be addressed, if necessary, through separate actions and procedures independent of this FEIS.

Comment Summary

If GMD #5 and KDA-DWR implement curtailments or forced retirements that substantially reduce or eliminate the economic viability of irrigated agriculture for affected water right holders-particularly where those reductions approach total diminution of value and where NRCS failed to rigorously evaluate less restrictive alternatives-affected landowners will have strong takings and due-process claims under the Fifth and Fourteenth Amendments and under the Kansas Bill of Rights. Courts evaluate regulatory takings based on: (1) the economic impact of the regulation on the claimant; (2) the extent to which the regulation interferes with distinct investment-backed expectations; and (3) the character of the governmental action. Where groundwater curtailments approach total elimination of irrigation use-the primary economic use for many agricultural parcels in the Rattlesnake Creek basin-and where those curtailments were imposed without adequate consideration of alternatives that would impose lesser burdens, Penn Central factors weigh heavily in favor of finding a compensable taking. Additionally, under the categorical takings framework of Lucas v. South Carolina Coastal Council, 505 U.S. 1003 (1992), a regulation that deprives property of all economically beneficial use constitutes a per se taking requiring compensation. The FEIS's omission of any serious analysis of these constitutional considerations heightens, rather than mitigates, associated litigation risk.

Response

As stated in the FEIS, "GMD #5 will purchase, lease-to-purchase, or transfer 2,500 acre-feet of authorized water use within Zone D as soon as possible *from willing sellers* pursuant to its statutory authority under the [Kansas Groundwater Management District Act] KGMDA" (FEIS page 142). The FEIS walks through GMD #5's plan for retirement: first, GMD #5 will use targeted water right retirements and transfers from willing sellers. Until then, GMD #5 will participate in temporary water right lease programs. If 2,500 acre-feet of water rights are not purchased and retired from willing sellers, eminent domain will be considered in coordination with NRCS and other agencies to further the goals of the FEIS.

The FEIS also demonstrates that NRCS adequately considered and evaluated alternatives, consistent with what is required under NEPA. Regulatory takings are outside of the scope of this

analysis. NRCS appreciates the commenter for raising this concern and provides the following analysis of the constitutional takings considerations:

The FEIS emphasizes that GMD #5 will work with willing sellers to retire water rights. Eminent domain is not the first plan of action and based on GMD #5's prior experiences with CAMP as a proof of concept, GMD #5 expects to find willing sellers to retire water rights in the targeted zones. As stated in FEIS Section 8.5.3, GMD #5 is responsible for 100 percent of real property acquisition and easements costs. In the unlikely event that GMD #5 must exercise its eminent domain power to acquire water rights, GMD #5 would provide just compensation and do so in accordance with federal and Kansas law.

Comment Summary

Before the Chief Engineer may order curtailment of any water right for impairment, Kansas law requires a showing of actual impairment. See Garetson Bros. v. Am. Warrior Inc., 347 P.3d 687, 696 (Kan. App. 2015) (noting requirement for investigation of impairment); K.A.R. 5-4-1(b) (same). If the alleged impairment at Quivira NWR is driven partly by internal waste or infrastructure deficiencies that the FEIS alternatives ignore, subsequent curtailments or takings of upstream rights based on the FEIS's analysis would be improper.

Response

The FEIS relies on the KDA–DWR 2016 Impairment Report and 2023 Supplement as the best available information regarding the Quivira NWR water right impairment, as described in FEIS Section 1.4.

NRCS coordinated with KDA–DWR during development of the FEIS consistent with NEPA requirements. KDA–DWR provided information regarding impairment findings, return-flow considerations, and the administration of water rights, which are discussed in FEIS Section 6.9.2.

Determinations of actual impairment, waste, return-flow, and any curtailment actions are made by KDA–DWR under the Kansas Water Appropriation Act. The FEIS does not alter state water rights priorities or substitute for state impairment procedures; instead, it discloses the applicable state-law framework and identifies that required water-appropriation permits for augmentation would be processed under Kansas law, as described in FEIS Section 8.4.

Economic Analysis

Comment Summary

There would be an impact to counties' tax base which was not acknowledged in the socioeconomic analysis in this EIS. The analysis within the EIS only quantified reductions in agricultural production but did not take into account direct reductions in tax revenue or which citizens that would impact most (ultimately higher tax rates would be borne by all property owners, including dryland farmland and homeowners). The analysis did not factor the

widespread ripple effect, which has been estimated to be as significant as $50 million per year ongoing in this region.

The FEIS continues to treat economic effects primarily at the farm-level, without quantitative modeling of indirect or induced effects on mills, ethanol facilities, livestock operations, hospitals, school districts, or the local tax base.

Response

FEIS Section 6.5.1 describes the analysis for the No Action Alternative which includes the use of Impact Analysis for Planning (IMPLAN) data to estimate indirect and induced impacts. FEIS Section 6.5.1 states the following:

- *According to the impact analysis for planning (IMPLAN), restrictions on access to irrigation under the No Action Alternative are estimated to reduce grain sales by $41.2 million annually.*
- *The decrease in grain production leads to a reduction in farm employment of 75 jobs. As the decreased income ripples through the economy, the total job loss would be 154 jobs.*
- *The direct impacts described above are likely to occur in Pratt, Stafford, Kiowa, and Edwards counties where Zone B is located. However, the indirect economic impacts are likely to occur in a larger regional area, considering the importance of agriculture to the economy.*
- *The loss in net farm income is likely to result in declines in employment and income to other industries that support the agricultural sector (e.g., co-ops, grain elevators, fuel, etc.). There is also potential for impacts to occur under the No Action Alternative because community workers may rely on the agricultural industry for jobs and income throughout the region.*

Comment Summary

Public analyses demonstrate that roughly 30% of the High Plains Aquifer has already been depleted, with projections of an additional 39% loss by mid-century. Despite these widely published depletion forecasts, the FEIS does not incorporate any regional economic modeling (e.g., Earnhart & Hendricks and Perez-Quesada et al.) of the foreseeable socioeconomic impacts on one of the nation's most productive agricultural regions. Its omission conflicts with NEPA's requirement to analyze indirect and direct economic effects.

The FEIS acknowledges that peer-reviewed literature on High Plains groundwater economics exists and was cited in comments (FEIS App. A, 3.3), yet provides no explanation to date for declining to use such models or address this literature. This omission renders the economic analysis arbitrary and capricious under the APA and KAPA.

Response

The High Plains Aquifer includes areas of Nebraska, Oklahoma, Texas and western Kansas, and is not specific to the project location which is within the Great Bend Prairie Aquifer. The FEIS cites McGuire 2017 to support that groundwater levels in the Great Bend Prairie Aquifer have been relatively stable in recent decades. Any information specific to the High Plains

Aquifer would not necessarily be applicable to the Great Bend Prairie Aquifer, since it covers too large of an area to be applicable (i.e. multiple states).

The Earnhart and Hendricks study and Perez-Quesada et al. study were both reviewed; however, NRCS did not feel they were directly related to the specific analysis that was included in the FEIS.

Comment Summary

Indirect and Cumulative Socioeconomic Effects

Rural depopulation, business closures, and revenue declines in high-poverty communities are plainly foreseeable results of large reductions in groundwater use. The FEIS acknowledges extreme poverty in communities like Belpre (32.7 percent poverty rate) and yet provides no plan to mitigate the disproportionate economic burden placed on these low-income populations. The FEIS's failure to model or meaningfully analyze these outcomes, as reflected in Section 6.5 and Section 8.1.1, is a significant shortcoming.

Income-Related Considerations

FEIS Section 4.6 shows that several communities (Hudson, St. John, Belpre) exceed state poverty rates (Table 4.6-1, at 79–80), yet the FEIS remains silent on whether the burdens of the preferred alternative fall disproportionately on these communities, in particular Hudson and Stafford.

The FEIS collected demographic data showing elevated poverty in affected communities but conducted no analysis of whether economic harms from groundwater reductions would fall disproportionately on these already-vulnerable populations.

State-Law and Constitutional Risks

Failure to conduct any poverty-related analysis in the face of data showing high poverty rates in affected communities (FEIS Section 4.6, Table 4.61), combined with the disproportionate economic impacts of the preferred alternative on those same communities, may support equal protection challenges at both the federal and state level. If state agencies implement water restrictions based on this deficient FEIS without conducting independent distributional analysis or considering alternatives that would reduce disparate impacts, such actions would be vulnerable to challenge under both federal and state constitutional provisions.

Response

The FEIS addresses socioeconomic impacts in Sections 6.5 and 8.1.1. Executive Orders 14148 and 14173 have revoked Executive Orders 14096 and 12898 regarding federal agencies' responsibilities to assess impacts of actions on communities with environmental justice concerns. In addition, following the Council on Environmental Quality (CEQ) memorandum issued on February 19, 2025, National Environmental Policy Act (NEPA) documents should not include an environmental justice analysis to the extent that this approach is consistent with other applicable laws.

Eminent Domain and Real Property Acquisition

Comment Summary

The FEIS does not quantify how many parcels or water rights could be condemned, nor does it analyze whether such condemnation is permitted. Recommendation that the FEIS include the following:

- Analysis of the “works of improvement” clause;
- Identification of all parcels and water rights targeted for acquisition;
- Detailed breakdown of anticipated voluntary versus condemnation acquisitions with specific percentages and justifications;
- Parcel-specific impact maps showing affected properties;
- Comprehensive socioeconomic analysis of acquisition impacts on affected landowners and communities;
- Environmental justice analysis of disproportionate impacts on vulnerable populations;
- Advance written notice to all potentially affected property owners at least 180 days prior to any acquisition activity; and
- Demonstration that condemnation authority is legally authorized under all procedural requirements stemming from 16 U.S.C. Section 1002 (FEIS Summary Tables; Section 8.5, at 276–277).

Recommendation that property acquisition and potential eminent domain adhere to the following:

- Demonstrating that the proposed acquisition qualifies as a "work of improvement" under 16 U.S.C. Section 1002;
- Obtaining prior written NRCS approval for each proposed acquisition;
- Exhausting all reasonable voluntary acquisition efforts;
- Providing at least 180 days advance written notice to affected property owners;
- Demonstrating necessity through clear and convincing evidence;
- Complying with all Kansas Private Property Protection Act requirements including economic impact reports under K.S.A. 77-703;
- Satisfying Kansas constitutional necessity determinations; and
- Ensuring just compensation under both federal and state constitutional standards (FEIS “Watershed Agreement,” Section 3–5, at 4–6).
- Voluntary acquisition has been exhausted;
- Condemnation is necessary to achieve the project purpose;
- The proposed condemnation complies with 16 U.S.C. Section 1002's limitations on use of federal funds for eminent domain; and
- The condemnation satisfies all applicable federal and state constitutional requirements including just compensation, due process, and necessity determinations (FEIS “Watershed Agreement,” Section 4–5, at 4–6).

Response

Section 5.3 of the FEIS identifies the general areas where land acquisition may be needed for the augmentation (both expanded or compact wellfield) and the water right retirement (Zone D). The exact location for well placement within the expanded and compact wellfield areas will depend on engineering, pumping tests, and landowner participation. Similarly, the exact parcels within Zone D where water right retirement will occur will be based on landowner participation

and distance from Rattlesnake Creek. Areas closer to Rattlesnake Creek will provide greater benefit from water right retirements.

Section 8.5.3 of FEIS states that “GMD #5 is responsible for 100 percent of real property acquisition and easements costs.” Federal funds appropriated under P.L. 83-566 (16 U.S.C. Section 1004) will not be used to acquire such lands and easements.

GMD #5 will prioritize purchasing property rights from willing sellers. See CAMP program as proof of concept. As the DEIS states, GMD #5 eminent domain will be evaluated, if necessary, under K.S.A. 82a-1028(f). Should GMD #5 exercise this authority, all due process and just compensation provided under state and federal constitutions would follow in exchange for such water rights.

Comment Summary

The FEIS also does not assess whether and how GMD #5 or NRCS would lawfully employ federal funds from the watershed plan to acquire water rights by eminent domain. See Section 1002 of P.L. 83-566; NWPM Section 504.3; and 16 U.S.C. Section 1002. The United States Fish and Wildlife Service expressed grave concern regarding the potential use of eminent domain, stating in its scoping comments that it does not support condemnation to secure water supplies for Quivira NWR, fearing it will be "viewed as the responsible party for this action and viewed in a highly negative way." Despite this opposition from an intended beneficiary of the project, and no evidence that NRCS referred the controversy to the CEQ under 40 C.F.R. 1504 (assuming such a referral was possible post-regulatory change), the FEIS places financial and legal risk of land acquisition on GMD #5 without adequately considering condemnation-related constraints. To strengthen the project's legal foundation and ensure long-term viability, we recommend that NRCS provide clear guidance on this statutory interpretation, which would help the project move forward with greater certainty.

Response

To the extent the commenter references referral under 40 CFR 1504.3, NRCS notes that, under this regulation, a federal agency can refer an issue to the CEQ after unsuccessful attempts to resolve differences with the lead agency. USFWS, a federal agency, and NRCS, as the lead agency, coordinated and discussed key aspects of the DEIS and FEIS. USFWS did not refer the issue to CEQ. As the FEIS emphasizes, eminent domain is not the initial action plan, but rather an option within GMD #5’s authority if GMD #5 cannot acquire 2,500 acre-feet of water rights via willing sellers voluntarily retiring such rights.

Comment Summary

Kansas law treats water rights as vested real-property interests protected by both state and federal constitutions. Williams v. City of Wichita, 190 Kan. 317, 375 P.2d 597 (1962)) (water rights are constitutionally protected property). Actions allowing diversion in excess of reasonable need or without adequate return-flow analysis may constitute unlawful waste and (potentially) regulatory takings. The FEIS does not quantify how many parcels or water rights could be

condemned, nor does it analyze whether such condemnation is permitted. 16 U.S.C. Section 1002. To enhance the project's legal defensibility and ensure successful implementation, we recommend that the FEIS include quantification of affected parcels and analysis of the "works of improvement" clause, particularly in light of recent developments in administrative law such as Loper-Bright.

Condemnation has environmental and social consequences that must be analyzed under NEPA. Though the FEIS contemplates off-refuge acquisition of land and water rights for the augmentation wellfield (FEIS 5.3-1–5.3-4, at 135–141), the FEIS does not analyze the scope or distribution of condemnations, nor compare them to voluntary or on-refuge alternatives, which constitutes a significant NEPA omission. Similarly, failure to address a threshold question of statutory authority under 16 U.S.C. Section 1002 constitutes agency action "in excess of statutory jurisdiction, authority, or limitations" under the APA.

Response

The FEIS provides authority for eminent domain. FEIS, p. 144 (“GMD #5 will exercise its authority to acquire water rights under K.S.A. 82a-1028(f). The KGMDA authorizes GMD #5 to use eminent domain to acquire ‘land and interests in land,’ which under Kansas law includes a user's water right. Any water rights acquired through eminent domain would be retired to achieve reduction goals under this objective.”). Additionally, FEIS Section 6.17.6 states “Land will then need to be purchased or easements obtained for construction. Landowner cooperation is an inherent risk and GMD #5 will avoid to the extent possible the need to exercise eminent domain.” The FEIS does not rely on 16 U.S.C. Section 1002, as GMD #5 would be the party acquiring water rights via eminent domain, if it must after pursuing voluntary retirement or reduction.

As explained in Section 5.3 of the FEIS, targeted water rights retirements from willing sellers is the prioritized method of water right retirement or reduction over the use of eminent domain. GMD #5’s CAMP is proof of concept of willing sellers. FEIS quantifies the amount of acre-feet needs to be retired or reduced, and as eminent domain will not be the primary option for retiring or reducing water rights, the FEIS does not quantify how many parcels could be condemned. The FEIS clearly demonstrates GMD #5’s intent to pursue voluntary methods of water right retirement or reduction and compares these methods to condemnation in Section 5.3.

Comment Summary

Any of our members whose property is condemned or whose water rights are drastically curtailed for by the augmentation project will have takings claims for just compensation under the Fifth Amendment to the U.S. Constitution (applicable to the states through the Fourteenth Amendment) and Section 4 of the Kansas Bill of Rights. Under Kelo v. City of New London, 545 U.S. 469 (2005), and its progeny, while the "public use" requirement is broadly construed, the taking must still be rationally related to a conceivable public purpose and the government must demonstrate that it considered reasonable alternatives. When condemnation occurs despite the existence of viable, less intrusive alternatives that an agency does not meaningfully evaluate (see Sections II–IV above), affected owners could assert both traditional takings claims under the Fifth Amendment and substantive due-process claims under the Fourteenth Amendment.

County of Sacramento v. Lewis, 523 U.S. 833, 846 (1998); Daniels v. Williams, 474 U.S. 327 (1986). Condemnation for a project that was predetermined without meaningful consideration of alternatives, that lacks adequate scientific support, and that imposes vastly disproportionate burdens on a discrete group of property owners, may satisfy this standard.

At the state level, Kansas eminent domain law provides additional protections beyond the federal floor, including heightened scrutiny of necessity and public use under the Kansas Constitution. See Miller v. Bartle, 150 P.3d 1282, 1288 (Kan. 2007) (necessity for eminent domain is a question of fact subject to judicial review). Any takings proceeding will require GMD #5 or NRCS to demonstrate that condemnation is necessary-a showing that will be difficult to sustain where the administrative record reflects viable, unevaluated alternatives. Any use of eminent domain will also trigger KPPPA reviews under K.S.A. 77-701 et seq. and state procedural safeguards under K.S.A. 26-501 et seq. (Kansas Eminent Domain Procedure Act), including just compensation requirements under K.S.A. 26-513. If GMD #5 or KDA–DWR rely on the FEIS's impairment and alternatives analysis without satisfying KPPPA and Kansas condemnation procedures, affected owners may challenge both the underlying determinations and the specific takings.

Response

The FEIS demonstrates that NRCS has considered reasonable alternatives – the No Action Alternative, the Augmentation Wellfield and Groundwater Use Reduction Alternative, and the Groundwater Use Reduction Alternative. Additionally, within the Augmentation Wellfield and Groundwater Use Reduction Alternative (the PAA), NRCS and GMD #5 have indicated that eminent domain and condemnation is not the primary plan. Rather, GMD #5 will work with willing sellers to retire water rights, and then as necessary, will evaluate eminent domain. Multiple non-eminent domain alternatives have been meaningfully considered and will be pursued before eminent domain. Additionally, the FEIS' Purpose and Need statement speaks to the public purpose. See FEIS Section 2.

The threshold inquiry under the KPPPA is whether a governmental action occurs, such that there could potentially be a taking. The KPPPA applies to certain governmental actions only (e.g., proposed legislation, proposed rules and regulations, and proposed agency guidelines and procedures concerning issuance of license and permits.), therefore, KPPPA does not apply. Under K.S.A. 77-702(b), the FEIS is not a state "governmental action," and K.S.A. 77-703(b)(2)(A) expressly excludes eminent domain actions from that definition. Therefore, no KPPPA taking assessment report is required.

NRCS has meaningfully considered other alternatives, and these are laid out in FEIS Section 5. However, if GMD #5 is required to use eminent domain after following its plans to first pursue voluntary water right retirement and reduction, GMD #5 will ensure compliance with federal and Kansas law on takings and eminent domain as applicable.

Equal Protection and Substantive Due Process Challenges

Comment Summary:

Rational-basis scrutiny applies to economic regulations, but a regulatory scheme that imposes disproportionate burdens based on economic class may be vulnerable to heightened scrutiny. Gross economic hardship combined with arbitrary government action can support substantive due process claims.

Response

The commenters raise several legal questions regarding constitutional doctrines such as equal protection and substantive due process. These types of legal arguments are outside the scope of a NEPA document and do not require a substantive response in the EIS or the ROD. NEPA requires federal agencies to disclose and consider the environmental effects of proposed actions; it does not require agencies to adjudicate or resolve constitutional claims or provide legal defenses within the NEPA record.

NRCS reviewed the comment for any factual issues relevant to the environmental analysis. The comment does not identify deficiencies in the FEIS's environmental impact evaluation or its supporting data. Accordingly, no changes to the FEIS or this ROD are warranted in response to this comment.