From:	Christine Pineda (She/Her)
To:	OKProjectReview@fws.gov; Fenner, Daniel
Cc:	Michelle Rome (She/Her); Mitchell Dehmer; Briana Arlene
Subject:	Request for Concurrence with ESA Determinations for Cimarron Site Decommissioning Plan (Consultation Code: 2023-0113658)
Date:	Tuesday, May 7, 2024 3:43:00 PM
Attachments:	Cimarron Site IPaC Report ML24109A283.pdf Cimarron Site ESA Determinations.pdf

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

Dear Oklahoma Ecological Services Field Office:

The purpose of this email is to notify you of the U.S. Nuclear Regulatory Commission (NRC) staff's determination that approval of the Cimarron Environmental Response Site Decommissioning Plan (Cimarron DP) for groundwater remediation in Logan County, Oklahoma, is not likely to adversely affect (NLAA) the tricolored bat, piping plover, rufa red knot, whooping crane, and monarch butterfly; has no effect (NE) on the Arkansas River shiner and peppered chub; and is not likely to destroy or adversely modify (NLDAM) the Arkansas River shiner critical habitat or the peppered chub critical habitat. This email describes the proposed action and summarizes the NRC staff's environmental review. This email also requests the U.S. Fish and Wildlife Service's (FWS) concurrence with the NRC staff's determinations pursuant to Section 7 of the Endangered Species Act of 1973, as amended (ESA).

Proposed Action

The NRC received a request (ML22286A041) from Environmental Properties Management, LLC (EPM), the trustee for the Cimarron Environmental Response Trust (CERT or licensee), to amend License SNM-928 (ML110270373) to approve a decommissioning plan for groundwater remediation on the site of the former Cimarron Fuel Fabrication Facility. If the NRC approves the decommissioning plan and issues the license amendment, EPM would be authorized to complete decommissioning of the site by installing groundwater treatment that would reduce the concentrations of uranium to levels below NRC regulatory limits. Groundwater remediation would allow for the eventual unrestricted release of the site from the NRC license. The license will remain in effect until it is terminated by the NRC.

The Cimarron DP describes the decommissioning activities that have been completed thus far over the last several decades, characterizes the site groundwater conditions, and specifies actions that EPM would take to remediate the remaining radioactivity in groundwater to a level that complies with the NRC's criteria for license termination in 10 CFR Part 20. The Cimarron DP also describes how the licensee would confirm the extent and success of remediation through radiological surveys, provide financial assurance to complete decommissioning, and ensure that the environmental impacts of decommissioning activities are appropriately evaluated and addressed.

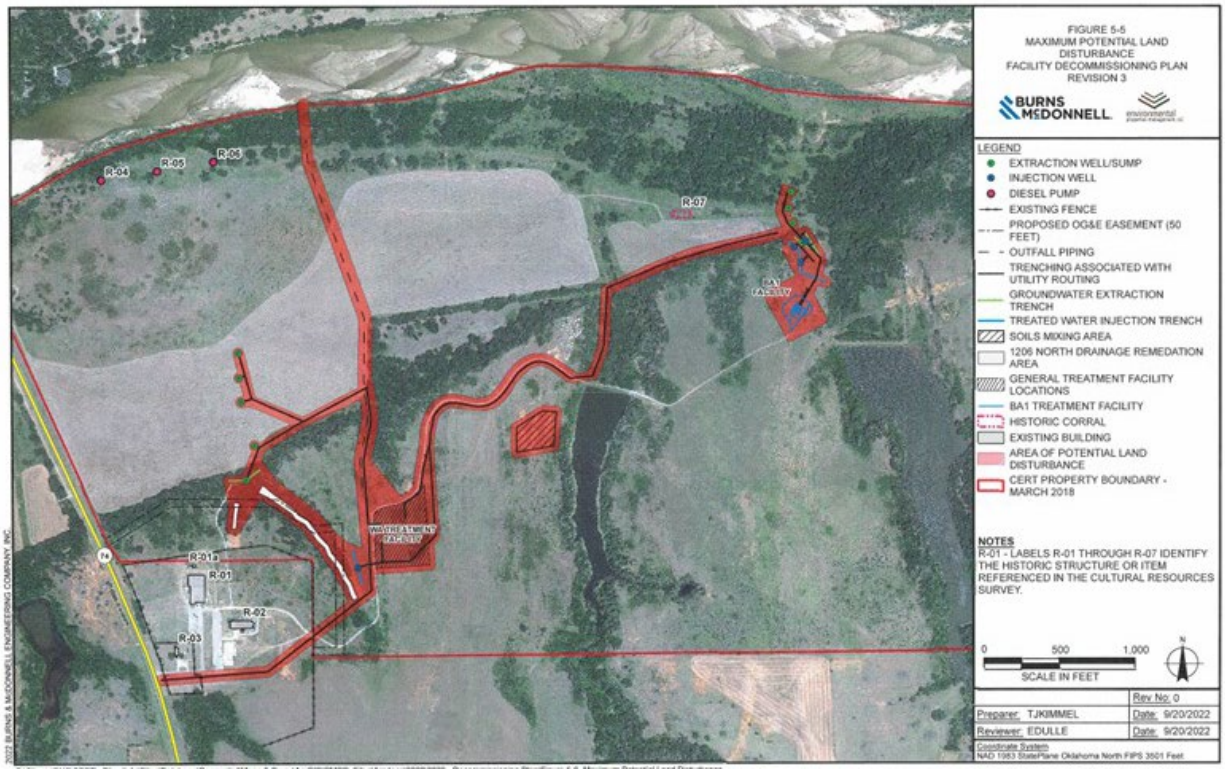
Environmental Assessment

In support of its review of the proposed action, the NRC staff is preparing an environmental assessment (EA) to comply with the National Environmental Policy Act of 1969, as amended (NEPA), and the NRC's environmental regulations in 10 CFR Part 51 that implement NEPA. The EA will address the environmental impacts of the proposed action and relevant alternatives to the proposed action. Once completed, the NRC will make the EA publicly available online and will announce its availability in the *Federal Register*. The NRC anticipates issuing the EA in December 2024.

Description of Action Area

The Cimarron site is situated along the southern bank of the Cimarron River near the intersection of Highways 74 and 33, approximately seven miles South of Crescent, Oklahoma. The site currently consists of approximately 500 acres of rolling hills and floodplain. Gravel roads, a gravel parking area, and one office building remain on the site.

The action area is the 500-acre Cimarron site (described below) and a portion of the Cimarron River. The figure below shows the proposed layout of the groundwater remediation infrastructure on the site. As described further below, the licensee would discharge treated groundwater to the Cimarron River. The NRC staff assumes that all of the discharged water would ultimately reach the river. Therefore, the region of the river within the action area includes (1) the entire width of the river along the area that borders the site, and (2) the region of the river that could be influenced by the point source discharge, spanning 100 meters downstream of the discharge point. The details of proposed discharges to the river are provided in the “Aquatic Resources Impacts” section of this email.



The site is located within the Prairie Tableland Level IV Ecoregion, and the site supports three habitat types: riparian, floodplain, and upland. The riparian area is located along the south bank of the Cimarron River at the north property boundary. The area includes a mature stand of phreatophyte (deep-rooted) tree species, including cottonwood and salt cedar, with an understory of wildrye, Western wheat, and sea oat grasses. The existing Cimarron River floodplain is bounded by the south side of the river and the bluffs. This area has a general mixture of native grasses, as well as tree and shrub species, including Johnson grass, wildrye, bermudagrass, soap berry, eastern cottonwood, eastern red cedar, and black willow. The upland area has a well-established stand of primarily native tallgrass prairie species, including big bluestem, Indiangrass, switchgrass, little bluestem, and sideoats grama, along with a diverse group of forbs and wildflowers. This area has been historically mowed for hay or used for cattle grazing. EPM conducted a qualitative assessment of the site’s wooded areas and documented the presence of Siberian elm, eastern red cedar, Kentucky coffeetree, black willow, fragrant sumac, bur oak, and green ash (ML23319A252). Wetland areas are also present on the site, most notably surrounding two manmade ponds and along the northern border of the site adjacent to the Cimarron River.

The site is also located within the Central Flyway, and the Cimarron River can provide breeding, stopover, and wintering habitat for many migratory bird species. Woodland, grassland, and wetland areas within the site may provide foraging and nesting habitat for migratory birds; however, the site does not include any habitat that is unique relative to the surrounding area that would specifically attract migratory birds.

Within the Cimarron site, two manmade ponds contain water year-round. The ponds are fed by ephemeral streams and stormwater inundation; thus, pond water level is typically lower in the summer (ML22284A150). The ponds are considered palustrine unconsolidated bottom wetlands. Palustrine emergent wetlands and riparian habitat surround the ponds. The riparian areas include dogwood species, eastern cottonwood, and eastern red cedar. Herbaceous wetland vegetation includes pinkweed and spike-rush, among others (ML23319A252).

Cimarron River

The Cimarron River has been designated as an aquatic resource of concern by the Oklahoma Department of Environmental Quality (ML22285A139, ML22307A296). Near the site, the river is relatively shallow and sandy and dominated by runs and riffles. It contains relatively little pool habitat or aquatic vegetation. The riparian corridor contains salt cedars and eastern cottonwood. The Cimarron River is mineral-rich because it travels through natural mineral deposits, salt plains, and saline springs.

In its 2018 Species Status Assessment Report for the Arkansas River shiner and peppered chub, the FWS (2022) assessed the Cimarron River from the Oklahoma/Kansas border downstream to Keystone Reservoir for its ability to support future recovery of these two species. In this region, the Cimarron River contains over 330 river miles of non-fragmented river with an average stream width of 71.2 acres/mile. This region of the river has narrowed much less than the upper section of the river in Kansas (23 percent versus 94 percent). With respect to the suitability of this stretch of the river for the Arkansas River shiner and peppered chub, the FWS (2022) rated the Cimarron River “Good-Fair.” The FWS scored fragmentation as good, low flow conditions as good, and hydroperiod and flood frequency as fair.

Terrestrial Resource Impacts

The proposed action would involve construction of a new outfall to the Cimarron River, installation and operation of a groundwater pumping and treatment system (piping, trenches, and two buildings for treating the groundwater), and subsequent effluent discharges to the river. To construct and operate the groundwater treatment system, approximately 38.3 acres of forested area would be cleared or potentially disturbed, with the majority of the clearing likely occurring in Spring 2025 (ML24089A260). These activities would consist of clearing and removing native grasses and topsoil, trees, and shrubs as needed to install infrastructure and support features (e.g., to control runoff) and to improve roads. EPM would remove trees and shrubs using standard earthmoving machinery and estimates that no more than 2,000 mature trees would be removed. Two mature bur oak trees (30-40 inch diameter) would need to be removed, and three potential bat roost trees may need to be removed (ML23319A252). If PRTs need to be cleared and that cannot be accomplished prior to March 31, 2025, then the licensee will conduct an emergent survey to identify and mitigate potential impacts on bats.

Noise from construction and earthmoving would last less than one year (and similar but reduced for the decommissioning phase). During the 12-13 year operations phase, noise would be minimal and primarily limited to occasional vehicles and pump skid systems, similar to the present noise levels at the site.

The new outfall would be constructed approximately 240 feet from the river, and a dispersion ditch would carry discharges to the river. Outfall and dispersion ditch construction would disturb less than 0.1 acre of riparian habitat, and construction activities would be confined to areas along the banks above the ordinary high-water mark. The licensee anticipates disturbing less than 0.5 acres of riparian

vegetation in total (ML24089A260). The proposed groundwater remediation project would not require disturbance to wetlands. EPM confirmed with the Tulsa District of the U.S. Army Corps of Engineers that the proposed design of the treatment system, with one outfall to the Cimarron River, would be covered by Nationwide Permit 7 for outfall structures and associated intake structures (ML23319A252).

EPM would apply for a stormwater permit that requires an updated SWPPP, similar to the plan developed previously for a 2017 pilot project (see ML22285A139, ML22307A296). EPM would implement BMPs as outlined in the stormwater pollution prevention plan (likely to consist primarily of silt fence and erosion control blankets) throughout earthmoving activities, while trenches and other features are in place that could result in sediment runoff, and until vegetation is established where needed. For example, the SWPPP would require vegetative buffers for land-disturbing activities within an ARC corridor: a buffer of at least 100 feet would be required along perennial and intermittent streams and a 50-foot buffer would be required along ephemeral streams and drainages. Other BMPs would address dust control, dewatering when necessary, and the management and storage materials and wastes.

EPM would sod, seed, or mulch disturbed areas within the site where construction has terminated, applying seed in accordance with Oklahoma Department of Transportation Commission specifications. Any fertilizer needed would be applied at the appropriate time of the year and timed to coincide as closely as possible with the period of maximum vegetation uptake and growth. Fertilizer would not be applied before heavy rains, in stormwater conveyance channels, or on frozen ground. All local, State, and Federal requirements regarding fertilizer application would be followed (ML22285A139). Herbicides would only be used around manmade surfaces (e.g., to prevent the growth of weeds in concrete cracks). Large areas of the site that have been mown for hay for several decades would continue to be mowed and thus would not provide habitat for the monarch butterfly.

As described in detail in the attached table, the NRC staff has determined that the potential impacts on the tricolored bat, piping plover, rufa red knot, whooping crane, and monarch butterfly would likely be insignificant or discountable.

Aquatic Resource Impacts

The proposed groundwater remediation project would discharge treated groundwater either by injection to the ground or as a discharge to the Cimarron River. EPM states that the discharge scenario evaluated was designed to minimize potential effects on the natural environment, including the USFWS Action Area. Treated water would be discharged into a man-made ditch and not directly into the Cimarron River at a maximum rate of 225 gpm and a design rate of 172 gpm. EPM does not anticipate making any changes to instream flow, banks, or other habitat features directly associated with the Cimarron River. The area of riparian vegetation that would be permanently impacted is less than 0.5 acre.

The proposed action would increase the rate of flow in the river by approximately 1.2 percent, based on a low-flow rate in the river of 19,000 gpm and a maximum discharge rate of 225 gpm. The discharge water would be adjusted for pH to fall within 6.8 to 7.0 and would meet NRC standards in 10 CFR Part 20, as well as Oklahoma discharge standards to be stipulated in EPM's OPDES permit (ML22284A150). The discharge limit for uranium and fluoride would be 30 mcg/L and 10 mg/L, respectively. The State limit for Tc-99 in drinking water is 900 pCi/L, but the discharge would likely contain less than one quarter of that amount and the State may determine a limit is not needed in the permit. A limit for nitrate would not likely be established in the permit, but reporting may be required.

As described further in the attached table, the Cimarron River is designated critical habitat for two species of fish, the peppered chub and the Arkansas River shiner. When discharging treated groundwater to the Cimarron River, the licensee will abide by relevant Federal and State regulations, including conditions set forth in the Oklahoma Pollutant Discharge Elimination System permit, when discharging to the Cimarron River. Effluents would not affect conductivity, dissolved oxygen, and would not be heated. The licensee would adjust the pH of effluent to 6.8-7.0 before it is discharged

(ML24089A260). The discharges could cause localized increases in turbidity, but this could represent a beneficial impact to the critical habitat because both species of fish prefer turbid and moving water (FWS 2022).

As explained further in the attached table, the staff has determined that the potential impacts on the peppered chub and Arkansas River shiner, as well as their designated critical habitat, would be insignificant or discountable.

ESA Determinations

As part of its environmental review, the NRC staff evaluated the impacts of the proposed action on federally listed species and designated critical habitats that may occur in the action area. The attached table contains the NRC staff's ESA determinations and rationale for of its determinations.

Request for Concurrence

The NRC staff requests your written concurrence with its NLAA determinations for piping plover, rufa red knot, and whooping crane and its NLDAM determinations for designated critical habitats of the Arkansas River shiner and peppered chub in accordance with 50 CFR 402.13(c). The NRC staff has also concluded that the proposed action is NLAA the tricolored bat and monarch butterfly. While the ESA does not require the NRC to consult with or receive concurrence from the FWS regarding these species, the NRC staff welcomes any comments you may have on these species or the NRC's impact assessment. Likewise, the NRC staff welcomes your comments on its determination that the proposed action would have NE on the Arkansas River shiner and peppered chub.

Please provide your response electronically to the following email addresses: EndangeredSpecies@nrc.gov, Briana.Arlene@nrc.gov, Mitchell.Dehmer@nrc.gov, and Christine.Pineda@nrc.gov. Should you need additional time to review this request, please reach out to discuss an extended timeframe so that the NRC staff can communicate this timeline to and obtain consent from its licensee in accordance with 50 CFR 402.13(c)(2).

Conclusion

Should you need to discuss the information in this email or if you require additional information concerning this project, please contact me at Christine.Pineda@nrc.gov.
Thank you,
Christine

Christine Pineda
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U.S. Nuclear Regulatory Commission
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301-415-6789

IPaC Consultation Code 2023-0113658
NRC Docket No. 70-925

ADAMS Accession No.: ML24122A742

CONCURRENCE					
OFFICE	CB:ETRB1:REFS	CB:EPMB2:REFS	SME:ETRB1:REFS	BC:ETRB1:REFS	OGC (NLO)
NAME	MDehmer	CPineda	BArlene	MRome	ACoggins
DATE	4/18/2024	4/17/2024	4/24/24	5/1/24	5/7/2024
OFFICIAL RECORD COPY					

U.S. Nuclear Regulatory Commission ESA Effect Determinations for Cimarron Environmental Response Site Decommissioning Plan

Species or Critical Habitat	Federal Status	Habitat in Action Area	Rationale for Determination	ESA Effect Determination
tricolored bat *(Perimyotis subflavus)*	Proposed endangered	Habitat present, recent survey	Tricolored bats may roost or forage within the Cimarron action area in onsite wetlands, adjacent edges of active or old agricultural field and pastureland, and riparian woodlands with dogwood species, eastern cottonwood, and eastern red cedar. The bats primarily roost in deciduous hardwood trees, among pine needles, and in eastern red cedar (FWS 2023a). On September 26, 2023, Burns & McDonnell conducted a habitat assessment for the tricolored bat (EPM 2024). A wildlife biologist conducted a desktop review and field survey using U.S. Fish and Wildlife Service (FWS) approved methods for Indiana and northern long-eared bat surveys. Three potential roost trees (PRT) were identified: PRT-1, PRT-2, and PRT-3. These are defined as trees at least three inches in diameter at breast-height with sloughing bark, cracks, crevices, or hollows. PRT-1 and PRT-3 are unlikely to be preferred habitat for the tricolored bat due to the current mortality stages of the trees. PRT-2 is a standing, dead green ash with exfoliating bark. There are no caves or bridges present on the site. The proposed action would involve construction of a new outfall to the Cimarron River, groundwater pumping and treatment, and subsequent effluent discharges to the river. In connection with these activities, the licensee would clear approximately 38.8 acres of vegetation, including forested area containing the PRTs within the Cimarron site, in spring of 2025 to support installation of trenches, wells, piping, and other infrastructure. In Oklahoma, winter tree clearing is November 16th through March 1st. If any of the PRTs require removal, the licensee would remove the trees prior to March 31, 2025, when tricolored bats are hibernating and least likely to be present on site. The licensee states that if the clearing of PRTs cannot be accomplished prior to March 31, 2025, then it would conduct an emergent survey to identify and mitigate potential impacts. The emergent survey would involve visual observation of the PRTs from one hour prior to sunset until one hour after sunset for each PRT to document the presence or absence of the tricolored bat. If no bats are present, the PRTs would be removed within 48 hours of the emergent surveys (EPM 2024). These protocols will ensure that tricolored bats are not adversely affected by tree clearing and other construction-related disturbances and that potential impacts would not rise to the level where take might occur. With respect to other disturbances caused by the proposed action, such as noise and general human activity, tricolored bats, if present in the action area, have already acclimated to this type of activity because Cimarron is an established industrial-use site. Thus, these types of disturbances during the decommissioning period would not cause additional behavioral changes in bats to a degree that could be meaningfully measured, detected, or evaluated, or that would reach the scale where take may occur. The proposed action would also not increase collision hazards, such as those associated with tall structures or vehicles.	May affect but is not likely to adversely affect

			The NRC staff finds that all potential effects on the tricolored bat resulting from the proposed action would be insignificant or discountable. Therefore, the NRC staff concludes that the proposed action may affect but is not likely to adversely affect the tricolored bat.	
piping plover (*Charadrius melodus*)	Threatened	Habitat present, no recent surveys	The piping plover is typically present in Oklahoma during migration from March to May and from July to September. The Cimarron River in the action area flows along the northern border of the Cimarron site. It is relatively shallow and sandy, dominated by run and riffle components, and contains relatively little pool habitat, aquatic vegetation, or riparian. Piping plovers have not been observed in the action area, although habitat, such as sandy beaches or mudflats, is likely to be present along riverbanks (EPM 2023). Suitable habitat within the action area is not of high-quality for piping plovers and would only constitute temporary stopover habitat during migration. The proposed action would involve construction of a new outfall to the Cimarron River, groundwater pumping and treatment, and subsequent effluent discharges to the river. The licensee will construct the new outfall (Outfall 001) approximately 240 feet from the river (EPM 2024), However, the discharge would not terminate at the Cimarron River (EPM 2024). Instead, the licensee would construct a dispersion ditch adjacent to the river. Outfall and dispersion ditch construction would disturb less than 0.1 acre of riparian habitat, and construction activities would be confined to areas along the banks above the ordinary high-water mark (EPM 2024). The licensee anticipates disturbing less than 0.5 acres of riparian vegetation in total (EPM 2024). As described above for the tricolored bat, 38.8 acres of forested vegetation would also be cleared for trenches, wells, piping, and other infrastructure. The licensee would seek required permits from the U.S. Army Corps of Engineers for construction activities and would follow associated permit conditions and best management practices to minimize impacts to the environment, such as erosion and sedimentation. The licensee would also revegetate disturbed areas following construction. Once the outfall is in use, the licensee will discharge up to 225 gallons per minute (gpm) of treated groundwater from the outfall to the Cimarron River. These effluent discharges could potentially increase the flow rate of the Cimarron River in the action area by up to 1.2 percent (EPM 2024). However, the licensee will also construct a dispersion ditch adjacent to the site, which will reduce the potential for increased turbidity and sedimentation within the river. The licensee will adjust the pH of effluent to 6.8-7.0 before it is discharged and will abide by relevant Federal and State regulations, including the Oklahoma Department of Environmental Quality (ODEQ)-issued Oklahoma Pollutant Discharge Elimination System (OPDES) permit (EPM 2024). Effluents could cause localized increases in turbidity. However, measurable or detectable impacts to water quality are unlikely due to the treatment of water prior to discharge, effluent limitation within the OPDES permit, and localized nature of any increases in turbidity. Other potential stressors that piping plovers could experience from the proposed action include noise; behavioral changes, such as avoidance of vehicles, machinery, and general human activity; collisions with site structures and vehicles; and effects related to herbicide application. If present in the action area, piping plovers have already acclimated to these types of stressors because Cimarron is an established industrial-use site. Thus, these types of activities during the decommissioning period would not cause behavioral changes in	May affect but is not likely to adversely affect

			piping plovers to a degree that could be meaningfully measured, detected, or evaluated, or that would reach the scale where take may occur. The proposed action would also not increase collision hazards. The licensee would apply any herbicides on the site in accordance with labeled uses and U.S. Environmental Protection Agency requirements. The NRC staff finds that all potential effects on the piping plover resulting from the proposed action would be insignificant or discountable. Therefore, the NRC staff concludes that the proposed action may affect but is not likely to adversely affect the piping plover.	
rufa red knot (*Calidris canutus rufa*)	Threatened	Habitat present, no recent surveys	The rufa red knot has a nonbreeding migration range that includes Oklahoma, though according to the Oklahoma Department of Wildlife Conservation, ideal foraging habitat is limited and fewer than five birds are reported in the state annually (ODWC 2023a). Rufa red knots have not been observed within the action area (EPM 2023). Suitable habitat within the action area is not of high-quality for the rufa red knot and would only constitute temporary stopover habitat during migration. The impacts that red knots could experience from the proposed action are identical to those described above for the piping plover. For the same reasons as identified for the piping plover, the NRC staff finds that all potential effects on the rufa red knot resulting from the proposed action would be insignificant or discountable. Therefore, the NRC staff concludes that the proposed action may affect but is not likely to adversely affect the rufa red knot.	May affect but is not likely to adversely affect
whooping crane (*Grus americana*)	Endangered	Habitat present, no recent surveys	Whooping cranes may occur in the action area from April through October during migration to wintering grounds in Florida. Whooping cranes have not been observed in the action area (EPM 2023). However, this species has been known to land on sites in central Oklahoma with features like those in the action area, including shallow wetlands, sandbars, shorelines of shallow rivers, and agricultural fields near water (ODWC 2023b). The impacts that whooping cranes could experience from the proposed action are identical to those described above for the piping plover. For the same reasons as identified for the piping plover, the NRC staff finds that all potential effects on the whooping crane resulting from the proposed action would be insignificant or discountable. Therefore, the NRC staff concludes that the proposed action may affect but is not likely to adversely affect the whooping crane.	May affect but is not likely to adversely affect
Arkansas River shiner (*Notropis girardi*)	Threatened	Habitat present, no recent surveys	The FWS considers the Arkansas River shiner to be extirpated from the Cimarron River (70 FR 59808). For this reason, the NRC staff concludes that the proposed action would have no effect on the Arkansas River shiner.	No effect
Arkansas River shiner critical habitat	Designated	Habitat present, no recent surveys	FWS established critical habitat for the Arkansas river shiner in 2005 to include the Cimarron River (70 FR 59808). The last known capture of this species occurred in 2004 where eight individuals were collected near Guthrie, Oklahoma (70 FR 59808). As stated above, the FWS considered this species to be extirpated from the Cimarron River. The FWS established seven primary constituent elements (PCEs) essential for the conservation of the species (70 FR 59808). These are:	Not likely to destroy or adversely modify

			(1) A natural, unregulated hydrologic regime complete with episodes of flood and drought or, if flows are modified or regulated, a hydrologic regime characterized by the duration, magnitude, and frequency of flow events capable of forming and maintaining channel and instream habitat necessary for particular Arkansas River shiner life-stages in appropriate seasons; (2) A complex, braided channel with pool, riffle (shallow area in a streambed causing ripples), run, and backwater components that provide a suitable variety of depths and current velocities in appropriate seasons; (3) A suitable unimpounded stretch of flowing water of sufficient length to allow hatching and development of the larvae; (4) Substrates of predominantly sand, with some patches of silt, gravel, and cobble; (5) Water quality characterized by low concentrations of contaminants and natural, daily and seasonally variable temperature, turbidity, conductivity, dissolved oxygen, and pH; (6) Suitable reaches of aquatic habitat, as defined by primary constituent elements 1 through 5 above, and adjacent riparian habitat sufficient to support an abundant terrestrial, semiaquatic, and aquatic invertebrate food base; and (7) Few or no predatory or competitive non-native fish species present. The proposed action would have no effect on PCE 1, 2, 3, 4, or 7. With respect to PCE 5 and 6, the proposed action would involve construction of a new outfall to the Cimarron River, groundwater pumping and treatment, and subsequent effluent discharges to the river, all of which have the potential to affect this PCE. Construction impacts are described above for the piping plover. Notably, construction would take place within the riparian zone of the Cimarron River established in the FWS's final rule designating Arkansas River shiner critical habitat (77 FR 59808). As indicated there, the licensee would abide by relevant local, State, and Federal permits for construction and effluent discharges and would follow best management practices for construction and revegetation of disturbed areas. When discharging effluent to the Cimarron River, the licensee will abide by relevant Federal and State regulations, including conditions set forth in the OPDES permit, when discharging effluents to the Cimarron River (EPM 2024). Effluents would not affect conductivity, dissolved oxygen, and would not be heated. The licensee will adjust the pH of effluent to 6.8-7.0 before it is discharged (EPM 2024). Effluents could cause localized increases in turbidity.	

			However, this could represent a beneficial impact to the critical habitat because the Arkansas River shiner prefers turbid and moving water (FWS 2018). Because all activities associated with the proposed action would require permits that would ensure that impacts to the aquatic environment are minimized, measurable or detectable impacts to PCE 5 and 6 within the action area are unlikely. Accordingly, the NRC staff finds that all potential effects on Arkansas River shiner critical habitat resulting from the proposed action would be insignificant or discountable. Therefore, the NRC staff concludes that the proposed action is not likely to destroy or adversely modify critical habitat of the Arkansas River shiner.	
peppered chub (*Macrhybopsis tetranema*)	Endangered	Habitat present, no recent surveys	The FWS states that the peppered chub is not currently present in the Cimarron River (FWS 2018). For this reason, the NRC staff concludes that the proposed action would have no effect on the peppered chub.	No effect
peppered chub critical habitat	Designated	Habitat present, no recent surveys	The FWS designated critical habitat for the peppered chub in 2022 to include the Cimarron River (87 FR 11188). The last observed occurrence of the peppered chub in the Cimarron River resiliency unit was in 2011 (87 FR 11188). As stated above, the FWS considers the species to no longer be present in the Cimarron River. The FWS established five physical or biological features (PBFs) essential for the conservation of the species (88 FR 11188). These are: (1) Unobstructed river segments greater than 127 river miles (rmi) in length that are characterized by a complex braided channel and substrates of predominantly sand, with some patches of silt, gravel, and cobble; (2) Flowing water with adequate depths to support all life stages and episodes of elevated discharge to facilitate successful reproductions, channel and floodplain maintenance, and sediment transportation; (3) Water of sufficient quality to support survival and reproduction, which includes, but is not limited to, the following conditions: (i) water temperatures generally less than 98.2 degrees Fahrenheit; (ii) dissolved oxygen concentrations generally greater than 3.7 parts per million (ppm); (iii) Conductivity generally less than 16.2 milli siemens per centimeter; (iv) pH generally ranging from 5.6 to 9.0, and (v) sufficiently low petroleum and other pollutant concentrations such that reproduction and/or growth is not impaired; (4) Native riparian vegetation capable of maintaining river water quality, providing a terrestrial prey base, and maintaining a healthy riparian ecosystem; (5) A level of predatory or competitive, native or nonnative fish present such that any peppered chub population’s resiliency is not affected.	Not likely to destroy or adversely modify

			The proposed action would have no effect on PBF 1, 2, and 5. With respect to the impacts on PBF 3 and 4, the impacts that the peppered chub critical habitat could experience from the proposed action are identical to those described above for the Arkansas River shiner critical habitat. Because all activities associated with the proposed action would require permits that would ensure that impacts to the aquatic environment are minimized, measurable or detectable impacts to PBF 3 and 4 within the action area are unlikely. Accordingly, the NRC staff finds that all potential effects on peppered chub critical habitat resulting from the proposed action would be insignificant or discountable. Therefore, the NRC staff concludes that the proposed action is not likely to destroy or adversely modify critical habitat of the peppered chub.	
monarch butterfly (*Danus plexippus*)	Candidate	Habitat present, no recent surveys	Monarchs in Oklahoma belong to the eastern migratory population, which breeds in the central and eastern United States and southern Canada and winters in Mexico (ODWC 2023c). Monarchs are associated with prairie, meadow and grassland habitats. Milkweed provides a habitat for the development of monarch eggs and larvae (OKState 2024). The most common species of milkweed located in central Oklahoma is green antelopehorn milkweed (*Asclepias viridis)* and is considered the most important host plant for the species. Green antelopehorn blooms from April to June and disperses seeds in July (OKState 2024). The licensee reports no known occurrences of the monarch butterfly within the action area. However, the licensee has conducted no ecological surveys to assess the species' presence or the suitability of onsite habitat. Given the proximity of known milkweed occurrences adjacent to the site, the NRC conservatively assumes that milkweeds could occur on site and the action area may provide larval habitat. Otherwise, monarchs may be occasionally present when moving between transitory areas of more suitable habitat. As described above for the tricolored bat, 38.8 acres of forested vegetation would also be cleared for trenches, wells, piping, and other infrastructure. The licensee would seek required permits from the U.S. Army Corps of Engineers for construction activities and would follow associated permit conditions and best management practices to minimize impacts to the environment, such as erosion and sedimentation. Historically, the action area has been mowed for hay and it is anticipated that weed control will be contracted out to a licensed vendor (EPM 2023). Milkweed is not known to occur onsite; it has the potential to occur on site in grasslands and open areas given its occurrence in central Oklahoma. Herbicides would only be applied according to labeled uses in developed and manicured areas on the site. Clearing and removal of native grasses, topsoil, trees, and shrubs will be removed using standard earthmoving machinery (EPM 2023). Green antelopehorn, the milkweed important to central Oklahoma, is known to regrow and bloom following disturbances from vegetation clearing (OKState 2024). The licensee would revegetate disturbed areas following construction. The contractor must submit its seeding plan and mixture to Burns & McDonnell for approval prior to restoration activities (EPM 2022). Monarchs would only have the potential to occur in the action area seasonally and infrequently, making the likelihood of occurrence low.	May affect but is not likely to adversely affect

			All the potential effects on the monarch butterfly resulting from the proposed action would be insignificant or discountable. Therefore, the NRC staff concludes that the proposed action may affect but is not likely to adversely affect the monarch butterfly.	

References

70 FR 59808. October 13, 2005. U.S. Fish and Wildlife Service. “Endangered and Threatened Wildlife and Plants ; Final Designation of Critical Habitat for the Arkansas River Basin Population of the Arkansas River Shiner (*Notropis girardi*); Final Rule.” *Federal Register* 70:59808-59846.

87 FR 11188. February 28, 2022. U.S. Fish and Wildlife Service. “Endangered and Threatened Wildlife and Plants; Endangered Species Status for Peppered Chub and Designation of Critical Habitat.” *Federal Register* 87:11188-11220.

(EPM) Environmental Properties Management, LLC. November 3, 2023. Letter from Bill Halliburton re: Response to September 6, 2023, Request for Additional Information. ADAMS No. ML23319A252.

(EPM) Environmental Properties Management, LLC. March 29, 2024. “Burns & McDonnell; Cimarron Environmental Response Trust Bat Habitat and Aquatic Habitat Assessment Reports.” ADAMS No. ML24089A260.

(EPM) Environmental Properties Management, LLC. 2022. Cimarron Environmental Response Trust Facility Decommissioning Plan - Rev 3, Appendix B, Stormwater Pollution Prevention Plan. Kansas City, Missouri. November 2017. ADAMS Nos. ML22285A139 and ML22307A296.

(FWS) U.S. Fish and Wildlife Service. 2022. Species Status Assessment Report for the Arkansas River Shiner *(Notropis girardi)* and Peppered Chub *(Macrhybopsis tetranema)* https://www.regulations.gov/document/FWS-R2-ES-2019-0019-0033

(FWS) U.S. Fish and Wildlife Service. 2023a. Environmental Conservation Online System, “Tricolored bat (Perimyotis subflavus).” Available at <https://ecos.fws.gov/ecp/species/10515> (accessed December 20, 2023).

(FWS) U.S. Fish and Wildlife Service. 2024a. FWS to NRC, List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project.” IPaC Report. April 18, 2024. ADAMS No. ML24109A283.

(ODWC) Oklahoma Department of Wildlife Conservation. 2023a. “Rufa Red Knot.” Available at <https://www.wildlifedepartment.com/wildlife/field-guide/birds/rufa-red-knot> (accessed November 6, 2023).

(ODWC) Oklahoma Department of Wildlife Conservation. 2023b. “Whooping Crane.” Available at <https://www.wildlifedepartment.com/wildlife/field-guide/birds/whooping-crane> (accessed November 6, 2023).

(ODWC) Oklahoma Department of Wildlife Conservation. 2023c. “Monarch.” Available at <https://www.wildlifedepartment.com/wildlife/field-guide/invertebrates/monarch> (accessed November 8, 2023).

(OKState) Oklahoma State University. 2024. “Monarch Conservation in Oklahoma and the southern Great Plains.” Available at <https://monarch.okstate.edu/> (accessed April 19, 2024).