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CHEROKEE COUNTY

Restoration Plan/ Environmental Assessment

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prepared for:

U.S. Department of the Interior

U.S. Fish and Wildlife Service

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TABLE OF CONTENTS

EXECUTIVE SUMMARY 1

CHAPTER 1 INTRODUCTION 7

CHAPTER 2 PURPOSE AND NEED: BACKGROUND 11

2.1 Purpose and Need for Restoration 11

2.2 Authorities and Legal Requirement 11

CERCLA and Superfund: Cherokee County Site History 11

CERCLA and Natural Resource Damage Assessment (NRDA) 14

Natural Environmental Protection Act (NEPA) of 1969 14

Other Authorities 14

2.3 Public Participation 17

2.4 Mining in Cherokee County and the Tri-State Mining District 18

History of Mining in Cherokee County: Overview 18

History and Location of Eagle-Picher Mining Activities 21

History and Location of LTV Mining Activities 22

Mining Activities of Other Parties 23

Mining and Metals Contamination 23

2.5 Contaminants of Concern 25

Cadmium 25

Lead 26

Zinc 26

CHAPTER 3 AFFECTED ENVIRONMENT 28

3.1 Surface Water Resources: Rivers, Lakes, Streams 28

Spring River 28

Spring River Tributaries 31

Empire Lake 37

Tar Creek 38

3.2 Geologic Resources 38

3.3 Ground Water 38

3.4 Biotic Environment 39

Threatened and Endangered Species 39

Aquatic and Amphibious Species 40

Birds 40

Mammals 41

Vegetation 41

3.5 Cultural Environment and Human Use 45
Demographics 45
Employment and Income 46
Land Use 46
Economic Activity 47
Recreational and Cultural Resources 47

CHAPTER 4 RESTORATION ALTERNATIVES 49
4.1 Terrestrial Restoration Alternatives 53
No Action: Alternative T1 53
Preserve Native Prairies: Alternative T2 53
High Quality Prairie Restoration: Alternative T3 55
CRP Grassland Restoration: Alternative T4 58
Cool Season Grassland Restoration: Alternative T5 60
Remove and Dispose of Terrestrial Mine Wastes: Alternative T6 61
Mine Waste Recontouring: Alternative T7 62
Mine Waste Recontouring and Encapsulation: Alternative T8 63
Apply Biosolid Amendments Beneath Planned EPA Caps: Alternative T9 63
Improve EPA Mine Waste Caps: Alternative T10 64
4.2 Aquatic Restoration Alternatives 64
No Action: Alternative A1 64
Preserve High Quality Riparian Corridors: Alternative A2 64
Preserve Empire Lake Buffer: Alternative A3 65
Improve Riparian Buffer: Alternative A4 66
Dredge Waterway(s): Alternative A5 66
Dredge Empire Lake and Install Underwater Sediment Retention Structures on Short Creek: Alternative A6 68
Drain and Cap Empire Lake: Alternative A7 69
Cap Empire Lake Sediments in Place: Alternative A8 69
Aquatic Biota Stocking of Rivers, Streams, and/or Empire Lake: Alternative A9 69
4.3 Miscellaneous Alternatives 70
Pilot Projects: Alternative M1 70
Public Outreach: Alternative M2 71

CHAPTER 5 EVALUATION OF ALTERNATIVES, INCLUDING ENVIRONMENTAL CONSEQUENCES 73
5.1 Terrestrial Restoration Alternatives 74
No Action: Alternative T1 74
Preserve Native Prairies: Alternative T2 75
High Quality Prairie Restoration: Alternative T3 76
CRP Grassland Restoration: Alternative T4 77
Cool Season Grassland Restoration: Alternative T5 79
Remove and Dispose of Terrestrial Mine Wastes: Alternative T6 80
Mine Waste Recontouring: Alternative T7 83
Mine Waste Recontouring and Encapsulation: Alternative T8 86
Apply Biosolid Amendments Beneath Planned EPA Caps: Alternative T9 90
Improve EPA Mine Waste Caps: Alternative T10 92
5.2 Aquatic Restoration Alternatives 92
No Action: Alternative A1 92
Preserve High Quality Riparian Corridors: Alternative A2 92
Preserve Empire Lake Buffer: Alternative A3 93
Improve Riparian Buffer: Alternative A4 94
Dredge Waterway(s): Alternative A5 95
Dredge Empire Lake and Install Underwater Sediment Retention Structures on Short Creek: Alternative A6 96
Aquatic Biota Stocking of Rivers, Streams, and/or Empire Lake: Alternative A9 97
5.3 Miscellaneous Alternatives 98
Pilot Projects: Alternative M1 98
Public Outreach: Alternative M2 99
5.4 Summary of Impacts by Alternative 99

CHAPTER 6 PREFERRED ALTERNATIVES 107
6.1 Terrestrial Preferred Alternatives 109
6.2 Aquatic Preferred Alternatives 111
6.3 Miscellaneous Alternatives 112

REFERENCES 113

APPENDIX A ENDANGERED, THREATENED, AND SINC SPECIES IN CHEROKEE COUNTY 123

APPENDIX B PREPARERS AND CONTRIBUTORS 127

APPENDIX C PUBLIC COMMENTS AND RESPONSES 129

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LIST OF EXHIBITS

Exhibit ES-1 Priorities for Terrestrial Alternatives *3*
Exhibit ES-2 Priorities for Aquatic Alternatives *4*
Exhibit ES-3 Priorities for Miscellaneous Alternatives *4*
Exhibit 1 NEPA Decision-Making *9*
Exhibit 2 Cherokee County Operable Unit – Subsite Associations *12*
Exhibit 3 Cherokee County Superfund Site: Designated Areas and Mine/Mill Wastes *13*
Exhibit 4 Bullrock Pile in Lawton *19*
Exhibit 5 Chat in Crestline *20*
Exhibit 6 Chat Pile in Treece *20*
Exhibit 7 Tailings in Crestline *21*
Exhibit 8 Subsidence Pond at Sunflower Mine in Baxter Springs *24*
Exhibit 9 Spring River Riparian Corridor *29*
Exhibit 10 Tri-State Mining District: Sediment Zinc Concentrations and Mussel Community Health *30*
Exhibit 11 Turkey Creek with Mine Waste Bars *33*
Exhibit 12 Portion of Short Creek near Galena, with Algae *34*
Exhibit 13 Shoal Creek at Low Flow near Schermerhorn Park *35*
Exhibit 14 Native Prairie, Diamond Grove, Missouri *42*
Exhibit 15 Native Prairie Forbs, Diamond Grove, Missouri *44*
Exhibit 16 Cherokee County Demographics – 2006 *46*
Exhibit 17 Cherokee County Land Use *47*
Exhibit 18 Restoration Alternatives Considered *51*
Exhibit 19 Native Prairie, Diamond Grove, Missouri *53*
Exhibit 20 Prairie Burn, Konza Biological Research Station, Manhattan, Kansas *54*
Exhibit 21 Agricultural Land: Corn and Soybean Stubble, Cherokee County *56*
Exhibit 22 Agricultural Land: Winter Wheat, Cherokee County *56*
Exhibit 23 Cool Season Pasture, Manhattan, Kansas *57*
Exhibit 24 Upland Area near Spring Branch, Cherokee County, Restored with Native Species *58*
Exhibit 25 CRP Grassland, Cherokee County *59*
Exhibit 26 Cool Season Grassland, Cherokee County *61*
Exhibit 27 Galena Subsite, June 1993 (Pre-Remediation) *84*
Exhibit 28 Galena Subsite, November 2003 (Post-Remediation) *85*
Exhibit 29 Spring Branch, in Baxter Springs Subsite, During Excavation of Chat (February 2002) *87*
Exhibit 30 Spring Branch, Baxter Springs Subsite, After One Year of Growth (November 2003) *87*
Exhibit 31 Spring Branch, in Baxter Springs Subsite, With Two Years of Growth (June 2004) *88*
Exhibit 32 Baxter Springs Subsite, Capped and Seeded with Grass (June 2004) *88*
Exhibit 33 Baxter Springs Subsite, Capped and Seeded with Grass and Forbs (June 2004) *89*
Exhibit 34 Terrestrial Restoration Alternatives: Benefits and Risks *101*

Exhibit 35 Aquatic Restoration Alternatives: Benefits and Risks *102*
Exhibit 36 Miscellaneous Alternatives: Benefits and Risks *102*
Exhibit 37 Terrestrial Restoration Alternatives: Human Use and Ecological Impacts *103*
Exhibit 38 Aquatic Restoration Alternatives: Human Use and Ecological Impacts *105*
Exhibit 39 Miscellaneous Alternatives: Human Use and Ecological Impacts *106*
Exhibit 40 Preliminary Preferred Restoration Options *108*

EXECUTIVE SUMMARY

Cherokee County, Kansas is part of the Tri-State Mining District, an approximately 2,500 square mile area that extends east and south to neighboring counties in Missouri and Oklahoma. The Tri-State Mining District has been extensively mined for lead and zinc for more than a century and was a major producer of these metals. During the period 1850-1950, the district produced 50 percent of the zinc and 10 percent of the lead in the United States (Brosius and Sawin 2001).

Past mining and related activities in the Tri-State Mining District have resulted in releases of metals such as cadmium, lead, and zinc to the local environment. Large piles of mining and milling wastes remain in the area, and metals have contaminated area soils, waters, ground water, and biota. Cadmium, lead, and zinc are toxic at sufficiently high concentrations, and contamination by these metals has resulted in a variety of injuries to natural resources (State of Kansas and DOI 2003). Although the full extent of these injuries has not yet been evaluated, there is a clear need to restore, rehabilitate, replace, and/or acquire the equivalent of the injured natural resources and the services they provide. This restoration plan applies only to Cherokee County, Kansas, and does not address restoration alternatives for the Missouri or Oklahoma portions of the Tri-State Mining District.

Many mining companies have operated in Cherokee County over the years, and only a fraction of these are still in business today. Recent years have seen a number of bankruptcy filings by companies that formerly owned and operated mines, and/or engaged in mining-related activities in Cherokee County. Two of these companies are Eagle-Picher Industries, Inc. (Eagle-Picher) and LTV Corporation (LTV). Eagle-Picher filed a petition under Chapter 11 of the United States Bankruptcy Code in 1991 and re-organized. LTV filed a petition under Chapter 11 in 1986, reorganized, and in 2000 again filed under Chapter 11.

During these companies' bankruptcy proceedings, the U.S. Fish and Wildlife Service (FWS) submitted a claim for damages in compensation for mining-related injuries to natural resources held under the trusteeship of the Department of the Interior (DOI). Negotiations ensued, and FWS eventually received approximately $2.6 million, including interest accrued to date, from the Eagle-Picher and LTV bankruptcy estates. FWS may also recover damages associated with injuries to natural resources in Cherokee County in conjunction with settlement negotiations with other current or former mining companies. FWS intends to use this restoration plan to focus possible restoration actions associated with future negotiations with other potentially responsible parties.

FWS is required to use the recovered funds to restore, rehabilitate, replace, and/or acquire the equivalent of the natural resources and those associated services that were injured as a consequence of these firms' mining activities in Cherokee County. This Restoration Plan/Environmental Assessment (RP/EA) describes FWS's broad priorities and general plans with respect to the use of these funds and any funds related to natural resource damages that may be acquired in the future. As an EA, this plan serves to facilitate public involvement in the plan and to comply with environmental decision-making requirements.

This RP/EA does not identify specific locations, scales, or other detailed information on potential restoration projects for a number of reasons. One of the most important reasons is the necessity of identifying landowners who are willing to work with FWS to pursue one or more of the specified alternatives: much of the land in question is privately held, and FWS may implement the alternatives described only with willing landowner cooperation. Therefore, instead of presenting specific locations or scales of activity, FWS identifies generally-preferred types of restoration projects. FWS intends to expend available funds in pursuit of cost-effective, environmentally beneficial projects. To best match restoration projects to associated injuries, FWS intends to implement its preferred restoration alternatives in areas impacted by the bankrupt firms' operations, namely within Cherokee County. However, FWS recognizes that adequate opportunities for restoration activities may be limited within these areas, and therefore will also consider restoration in surrounding areas (*i.e.*, Crawford, Montgomery, and Labette Counties).

Altogether, this RP/EA identifies and describes ten restoration alternatives for terrestrial habitats, nine restoration alternatives for aquatic habitats, and two non-habitat specific alternatives. It then evaluates these alternatives, taking into account a variety of factors including (43 CFR §11.82(c)):

1. The degree to which the project would provide the public with ecological services similar to those lost as a consequence of mining contamination;
2. Technical feasibility (*i.e.*, whether it is possible to implement the alternative);
3. The probability of project success (*i.e.*, the likelihood that implementing the alternative would produce the desired results);
4. The anticipated relationship of costs to benefits;
5. The relative cost-effectiveness of different alternatives (*i.e.*, if two alternatives are expected to produce similar benefits, the least costly one is preferred);
6. The ability of the natural resources to recover with or without each alternative, and the time required for such recovery;
7. The potential for collateral injury to the environment if the alternative is implemented;
8. Potential effects on public health and safety;
9. The results of actual or currently-planned response actions;

10. Compliance with applicable Federal and state laws; and
11. Consistency with relevant Federal and state policies.

Based on these factors, FWS identifies and ranks the following groups of alternatives (Exhibit ES-1 through ES-3). Groups are ranked in order of priority. Within a rank group, alternatives are listed in FWS's order of preference, although differences in priority between rank groups are generally larger than differences in priority within a group. Two non-habitat specific alternatives are also included among the preferred alternatives.

EXHIBIT ES-1 PRIORITIES FOR TERRESTRIAL ALTERNATIVES

PRIORITY RANK GROUP	TERRESTRIAL	
	ALTERNATIVE NUMBER	DESCRIPTION
1	T2*✝	Preserve native prairies
2	T3*✝	High quality prairie restoration (no biosolids required)
	T4*✝	CRP grassland restoration (no biosolids required)
	T10	Improve EPA mine waste caps (through soil amendments and fencing)
	T5*✝	Cool season grassland restoration (no biosolids required)
3	T3⁂	High quality prairie restoration (biosolids required)
	T4⁂	CRP grassland restoration (biosolids required)
	T5⁂	Cool season grassland restoration (biosolids required)
	T6 (with T3, T4, or T5)	Remove and dispose of terrestrial mine wastes in subsidences; cap subsidences; replant
	T8 (with T3, T4, or T5)	Mine waste recontouring and encapsulation; replant
	T9	Apply biosolid amendments beneath planned EPA caps
	T7 (with T3, T4, or T5)	Mine waste recontouring; replant

Notes:
* Preferably in Cherokee County but potentially in neighboring Kansas counties.
✝ At non-mining related sites.
⁂ At mining-related sites.

EXHIBIT ES-2 PRIORITIES FOR AQUATIC ALTERNATIVES

PRIORITY RANK GROUP	TERRESTRIAL	
	ALTERNATIVE NUMBER	DESCRIPTION
1	A2	Preserve high quality riparian corridors
	A3	Preserve Empire Lake buffer
2	A4	Improve riparian buffer
3	A5 with A4 and A9	Dredge waterways, restore buffer, restock
	A6	Dredge Empire Lake; install and maintain underwater sediment retention structures on Short Creek

EXHIBIT ES-3 PRIORITIES FOR MISCELLANEOUS ALTERNATIVES

PRIORITY RANK GROUP	TERRESTRIAL	
	ALTERNATIVE NUMBER	DESCRIPTION
1	M1	Pilot projects
	M2	Public outreach

FWS's first overall priority is the preservation of existing high quality habitat, including native prairies (usually in the form of native prairie hay meadows), high quality riparian corridors, and Empire Lake buffer. Preserving these areas would include purchasing land or easements from willing landowners, fencing the sites, and managing them over time. At this point, FWS has not determined who would hold the titles to any purchases or easements; options potentially include agencies within the State of Kansas or non-governmental organizations.

FWS anticipates that preservation of these areas will produce significant ecological benefits similar to the ecological services lost due to mining and related activities. For one, FWS believes that most if not all Cherokee County native prairie remnants can reasonably be considered to be in imminent danger: as one of the rarest types of ecosystems in the world, the habitat has been subject to extensive degradation and destruction throughout its range, including Cherokee County. High quality riparian areas are not very common within the county, and much of the shoreline of Empire Lake, the only lake within the county, has already been developed. Furthermore, almost all the areas to be preserved are in private hands, and in the absence of easements, current or future owners may use these areas as they see fit. It is therefore possible that degradation of these valuable habitats could occur at any time.

FWS's prioritization of the preservation of these habitat types is also based on the high ecological value provided by these areas, the lack of technical challenges in preserving

these areas, and the relatively low cost, in that the main costs would be acquisition of land (or purchase of easements on the land) and management thereafter. Preservation of existing high quality habitat will not result in collateral injury to the environment, poses no risk to the public health, and can be accomplished in a manner that is consistent with state and Federal laws and policies[1]. In addition, habitat preservation will not delay EPA's remedial activities and will not be a detriment to the achievement of EPA's remedial goals.

For similar reasons, FWS's second overall priority for terrestrial and aquatic areas is to restore more degraded habitat types to a high quality state. This would entail purchasing property or easements from willing landowners, preparing the soil, controlling unwanted vegetation, and seeding the site, preferably with a native species mix. These alternatives also require funding to support the long-term management of the selected sites.

FWS notes that in selecting specific parcels for preservation or vegetative restoration, FWS generally favors those with one or more of the following characteristics:

- Those that fall within areas designated as critical habitat for threatened or endangered species;
- Those that are larger, as larger areas generally provide superior habitat than would smaller, fragmented areas even if equal in total size;
- Those that are contiguous with or close to other protected areas, as this helps to provide wildlife corridors and decreases habitat fragmentation;
- Those that are of higher habitat quality; and
- Those with greater proximity to mining-affected areas. All else equal, areas within Cherokee County are preferred over areas in adjacent counties.

Most of the alternatives described above are intended for sites where mine wastes are not present. FWS's third-ranked groups of alternatives address those areas where mine wastes still remain. At terrestrial sites, these alternatives entail applying biosolid amendments to mine waste areas and replanting. This group also includes other primary restoration measures such as waste removal and disposal in subsidences, encapsulation, and recontouring, among others. Replanting with a seed mix (preferably native) must be performed concomitant with such measures to restore the quality of the habitat.

At aquatic sites, the third priority group of alternatives also includes primary restoration activities such as the removal of contaminated sediments from depositional areas in rivers and creeks (*i.e.*, at confluence areas and behind dams), and the removal of contaminated sediments from Empire Lake. Appropriate measures to restore the quality of the habitat, such restocking aquatic species and restoring buffer areas are included.

[1] Applicable federal policies include DOI Environmental Quality Programs Part 518, Waste Management, Part 602, Land Acquisition, Exchange and Disposal, and Fish and Wildlife Service Manual 341 FW 3, Pre-Acquisition Environmental Site Assessment.

Addressing terrestrial or aquatic mine wastes in any reasonably effective fashion is expensive. Given the limited amount of funds currently available, a lower priority has been assigned to addressing mine waste in Cherokee County. However, the FWS recognizes there may be opportunities in the future to further reduce the bioavailability of metals in these wastes and thereby further reduce risks to terrestrial resources including migratory birds and endangered and threatened species. These opportunities may be pursued, dependent on the availability of additional funding.

To complement the terrestrial and aquatic preferred alternatives proposed above, FWS plans to implement both the M1 (pilot projects) and M2 (public outreach) alternatives. Adequate methods development and public outreach are key components to restoration project success, although they do not result in significant direct improvements in environmental conditions. Thus the M1 and M2 alternatives are not assigned a distinct priority relative to the other restoration projects but will be implemented as appropriate, regardless of the final terrestrial and aquatic alternatives selected.

FWS also notes that most of the proposed alternatives would require the cooperation of willing landowners, and that for various reasons, some landowners may prefer alternatives other than those preferred by FWS. FWS recognizes the need to identify restoration alternatives for specific parcels of land that are acceptable to landowners as well as to FWS.

Public comments and input on this RP/EA are encouraged and will be accepted during a period of 30 days after the release of this draft RP/EA. Members of the public may e-mail comments to CherokeeCountyRestoration@fws.gov.

Alternately, the public may send comments to:

Cherokee County Restoration
U.S. Fish and Wildlife Service
Kansas Field Office
2609 Anderson Ave.
Manhattan, KS 66502

FWS will also set up a series of public meetings during which members of the public may express their views and ask questions about this RP/EA. These meetings have not yet been scheduled, nor have their locations been selected. When this information is available, it will be posted to the following website:

http://mountain-prairie.fws.gov/nrda/CherokeeCounty.htm.

When a final RP/EA is available, it will be posted on the above website. Draft and final copies also will be provided to the Columbus, Baxter Springs, and Galena Public Libraries.