

**United States Department of the Interior
Office of Surface Mining Reclamation and Enforcement**

Cooper Ridge Mine
OSMRE Permit Application 3270
Permit Application
Environmental Assessment
February 28, 2017



Prepared by:
U.S. Department of the Interior
Office of Surface Mining Reclamation and Enforcement, Program Support Division
John J. Duncan Federal Building, 710 Locust St, 2nd floor
Knoxville, TN 38902
PH: 865-545-4103 / FAX: 865-545-4111

Table of Contents

| | |
|--|----|
| List of Figures: | 7 |
| List of Tables: | 8 |
| Abbreviations and Acronyms | 9 |
| Glossary of Terms..... | 11 |
| CHAPTER 1. PURPOSE AND NEED..... | 18 |
| 1.1 INTRODUCTION | 18 |
| 1.2 BACKGROUND | 19 |
| CHAPTER 2. PROPOSED ACTION AND ALTERNATIVES | 20 |
| 2.1 INTRODUCTION..... | 20 |
| 2.2 DESCRIPTION OF THE PROPOSED ACTION | 20 |
| 2.3 DESCRIPTION OF ALTERNATIVES..... | 23 |
| 2.3.1 Preferred Action Alternative (Alternative A) | 23 |
| 2.3.2 Permit Application Disapproval Alternative (Alternative B) | 23 |
| 2.3.3 Alternatives Considered but Rejected | 23 |
| 2.4 MINING METHODS..... | 24 |
| 2.5 ACCESS AND HAULROADS..... | 24 |
| 2.6 SEDIMENT BASINS..... | 24 |
| 2.7 MINE FACILITIES..... | 24 |
| 2.8 RECLAMATION | 25 |
| CHAPTER 3. AFFECTED ENVIRONMENT | 26 |
| 3.1 GENERAL SETTING..... | 26 |
| 3.2 TOPOGRAPHY..... | 27 |
| 3.3 AIR AND CLIMATE RESOURCES | 29 |
| 3.3.1 Local Climate | 29 |
| 3.3.2 Regulatory Requirements..... | 29 |
| 3.3.3 Onsite Air Quality..... | 31 |
| 3.3.4 Climate Change | 31 |
| 3.4 GEOLOGY..... | 32 |
| 3.5 WATER RESOURCES | 33 |

| | |
|---|----|
| 3.5.1 Surface Water | 33 |
| 3.5.2 Groundwater | 34 |
| 3.6 VEGETATION | 34 |
| 3.7 WETLANDS AND RIPARIAN ZONES | 35 |
| 3.8 FISH AND WILDLIFE RESOURCES | 36 |
| 3.8.1 Mammals | 36 |
| 3.8.2 Big Game | 36 |
| 3.8.3 Migratory Birds | 37 |
| 3.8.4 Reptiles and Amphibians | 38 |
| 3.8.5 Fisheries | 38 |
| 3.8.6 Bats..... | 39 |
| 3.9 SPECIAL SPECIES STATUS..... | 40 |
| 3.9.1 Threatened, Endangered, and Candidate Species | 41 |
| 3.10 CULTURAL AND HISTORIC RESOURCES | 41 |
| 3.11 AMERICAN INDIAN CONCERNS | 42 |
| 3.12 SOCIOECONOMICS | 42 |
| 3.13 ENVIRONMENTAL JUSTICE | 43 |
| 3.14 VISUAL RESOURCES..... | 45 |
| 3.15 RECREATION..... | 48 |
| 3.16 PALEONTOLOGY | 48 |
| 3.17 SOLID OR HAZARDOUS WASTE | 48 |
| 3.18 NOISE | 48 |
| 3.19 SOILS | 48 |
| 3.20 PRIME FARMLANDS | 49 |
| 3.21 HEALTH AND PUBLIC SAFETY | 49 |
| 3.21.1 Public Safety | 49 |
| 3.21.2 Public Access | 49 |
| 3.21.3 Blasting Impacts..... | 49 |
| 3.21.4 Use of Public Roads..... | 51 |
| 3.21.5 Subsidence | 51 |
| 3.21.6 Flooding..... | 51 |
| CHAPTER 4: ENVIRONMENTAL CONSEQUENCES (DIRECT AND INDIRECT IMPACTS) | 53 |

| | |
|---|----|
| 4.1 INTRODUCTION | 53 |
| 4.1.1 Summary Comparison of Direct and Indirect Environmental Impacts | 53 |
| 4.2 TOPOGRAPHY..... | 61 |
| 4.2.1 Alternative A (Proposed Action) | 61 |
| 4.2.2 Alternative B (Disapproval) | 61 |
| 4.3 AIR AND CLIMATE RESOURCES | 61 |
| 4.3.1 Alternative A (Proposed Action) | 61 |
| 4.3.2 Alternative B (Disapproval) | 66 |
| 4.4 GEOLOGY..... | 66 |
| 4.4.1 Alternative A (Proposed Action) | 66 |
| 4.4.2 Alternative B (Disapproval) | 66 |
| 4.5 WATER RESOURCES | 66 |
| 4.5.1 Alternative A (Proposed Action) | 66 |
| 4.5.2 Alternative B (Disapproval) | 69 |
| 4.6 VEGETATION | 69 |
| 4.6.1 Alternative A (Proposed Action) | 69 |
| 4.6.2 Alternative B (Disapproval) | 70 |
| 4.7 Wetlands and Riparian Zones | 71 |
| 4.7.1 Alternative A (Proposed Action) | 71 |
| 4.7.2 Alternative B (Disapproval) | 71 |
| 4.8 FISH AND WILDLIFE RESOURCES..... | 71 |
| 4.8.1 Alternative A (Proposed Action) | 71 |
| 4.8.2 Alternative B (Disapproval) | 74 |
| 4.9 SPECIAL STATUS SPECIES..... | 74 |
| 4.9.1 Alternative A (Proposed Action) | 74 |
| 4.9.2 Alternative B (Disapproval) | 78 |
| 4.10 SOCIOECONOMICS..... | 78 |
| 4.10.1 Alternative A (Proposed Action) | 78 |
| 4.10.2 Alternative B (Disapproval) | 78 |
| 4.11 ENVIRONMENTAL JUSTICE | 78 |
| 4.11.1 Alternative A (Proposed Action) | 78 |
| 4.11.2 Alternative B (Disapproval) | 79 |

| | |
|---|----|
| 4.12 VISUAL RESOURCES..... | 79 |
| 4.12.1 Alternative A (Proposed Action) | 79 |
| 4.12.2 Alternative B (Disapproval) | 80 |
| 4.13 ACCESS AND TRANSPORTATION | 80 |
| 4.13.1 Alternative A (Proposed Action) | 80 |
| 4.13.2 Alternative B (Disapproval) | 81 |
| 4.14 SOLID AND HAZARDOUS WASTE..... | 81 |
| 4.14.1 Alternative A (Proposed Action) | 81 |
| 4.14.2 Alternative B (Disapproval) | 82 |
| 4.15 NOISE | 82 |
| 4.15.1 Alternative A (Proposed Action) | 82 |
| 4.15.2 Alternative B (Disapproval) | 84 |
| 4.16 SOILS | 84 |
| 4.16.1 Alternative A (Proposed Action) | 84 |
| 4.16.2 Alternative B (Disapproval) | 85 |
| 4.17 HEALTH AND PUBLIC SAFETY | 85 |
| 4.17.1 Alternative A (Proposed Action) | 85 |
| 4.17.2 Alternative B (Disapproval) | 87 |
| CHAPTER 5. CUMULATIVE IMPACTS | 88 |
| 5.1 INTRODUCTION..... | 88 |
| 5.2 PAST AND PRESENT ACTIONS | 88 |
| 5.3 REASONABLY FORESEEABLE FUTURE ACTIONS | 88 |
| 5.4 CUMULATIVE IMPACTS | 88 |
| 5.4.1 Topography | 88 |
| 5.4.2 Air and Climate Resources | 88 |
| 5.4.3 Geology | 89 |
| 5.4.4 Water Resources..... | 89 |
| 5.4.5 Cumulative Hydrologic Impacts (Wetlands and Riparian, Water Resources)..... | 89 |
| 5.4.6 Cumulative Terrestrial Impacts (Vegetation, Fish and Wildlife Resources, Special Status Species, Visual Resources) | 90 |
| 5.4.7 Cultural and Historic Resources | 91 |
| 5.4.8 Environmental Justice | 91 |

| | |
|--|-----|
| 5.4.9 Health and Public Safety | 94 |
| 5.4.10 Noise | 94 |
| 5.4.11 Solid and Hazardous Waste | 94 |
| 5.4.12 Soils | 94 |
| CHAPTER 6. COORDINATION AND CONSULTATION..... | 96 |
| 6.1 AGENCIES/PERSONS CONSULTED | 96 |
| 6.1.1 Public Comment Process..... | 96 |
| 6.1.2 US Fish and Wildlife Section 7 Process | 100 |
| 6.1.3 Tribal Consultation..... | 100 |
| 6.2 PREPARERS AND PARTICIPANTS | 100 |
| Chapter 7 References..... | 101 |
| 7.1 REFERENCES | 101 |
| Appendix A. TDEC NPDES Permit..... | 105 |
| Appendix B. Response to Comments..... | 106 |
| Appendix C. Surface Mining Greenhouse Gas Emissions Quantification | 107 |
| Appendix D. USFWS Biological Opinion | 108 |
| Appendix E. OSMRE CHIA..... | 109 |
| Appendix F. TDEC Air Pollution Control Board Operating Permit..... | 110 |

List of Figures:

Figure 2.2. Permit 3270 Location Map..... 22

Figure 3.2. Topography Map..... 28

Figure 3.8.7. Closest Bat Hibernacula in Reference to Permit Area 40

Figure 3.14 Project Area in Relation to Cumberland Gap National Historical Park..... 46

List of Tables:

Table 2.2 Permitted Acres..... 21

Table 3.1 Resources and Determination of Need for Further Analysis 26

Table 3.3.2 National Ambient Air Quality Standards 30

Table 4.1.1 Summary of Chapter 4 Environmental Impacts by Alternative 54

Table 6.1.1. List of Consultation and Coordination 98

Abbreviations and Acronyms

ACOE: US Army Corp of Engineers
AMD: Acid Mine Drainage
ARAP: Aquatic Resource Alteration Permit
AQCR: Air Quality Control Regions
AQI: Air Quality Index
BMP: Best Management Practices
CAA: Clean Air Act
CEQ: Council on Environmental Quality
CFR: Code of Federal Regulations
CGNHP: Cumberland Gap National Historical Park
CHIA: Cumulative Hydrologic Impact Assessment
CIA: Cumulative Impact Analysis
CTSP: Cumberland Trail State Park
CWA: Clean Water Act
dBA: A-Weighted Decibels
DNA: Division of National Areas
EA: Environmental Assessment
EIS: Environmental Impact Statement
EJ: Environmental Justice
EPA: Environmental Protection Agency
ESA: Endangered Species Act
FONSI: Finding of No Significant Impact
FWS: U.S. Fish and Wildlife Service
GHG: Greenhouse Gases
HRP: Hydrologic Reclamation Plan
KFO: Knoxville Field Office
LIWA: Local Interagency Working Agreement
MMT: Million Metric Tons
NCWMA: North Cumberland Wildlife Management Area
NAS: National Academy of Sciences
NEPA: National Environmental Policy Act
NLCD: National Land Cover Database
NLEB: Northern Long-Eared Bat
NPDES: National Pollutant Discharge Elimination System
NPS: National Park Service
NRI: Nationwide Rivers Inventory
OSMRE: Office of Surface Mining Reclamation and Enforcement
PHC: Probable Hydrologic Consequences

PM: Particulate Matter
PSD: Prevention of Significant Deterioration
SHPO: State Historic Preservation Office
SMCRA: Surface Mining Control and Reclamation Act
TDEC: Tennessee Department of Environment and Conservation
TMHP: Toxic Materials Handling Plan
TMI: Tennessee Macroinvertebrate Scores
TPY: Tons Per Year
TSP: Total Suspended Particulate
TSS: Total Suspended Solids
TVA: Tennessee Valley Authority
TWRA: Tennessee Wildlife Resources Agency
USDOI: United States Department of Interior
USFS: United State Forest Service

Glossary of Terms

Acid Mine Drainage: The term acid mine drainage is used, in this context, to refer to any polluttional discharge emanating from a mining operation. Many of these discharges are, in fact, alkaline with high levels of metals.

Advisory Council on Historic Preservation (ACHP): The ACHP is an independent federal agency that promotes the preservation, enhancement, and productive use of our nation's historic resources, and advises the President and Congress on national historic preservation policy.

Affected Environment: Term used in the National Environmental Policy Act to denote surface or subsurface resources (including social and economic elements) within or adjacent to a geographic area that could potentially be affected by a proposed action; the environment of the area to be affected or created by the alternatives under consideration (40 CFR § 1502.15).

Alternative: Combination of management prescriptions applied in specific amounts and locations to achieve desired management goals and objectives.

Approximate Original Contour: The surface configuration achieved by backfilling and grading the mined area so that the reclaimed land closely resembles the general premining surface configuration and blends into and complements the drainage pattern of the surrounding terrain.

Aquifer: A zone, stratum, or group of strata that can store and transmit water in sufficient quantities for a specific use.

Area Mining: A surface mining method that is carried on in level to gently rolling topography or relatively large tracts of land. Active area mine pits may be several miles long.

Auger Mining: A mining technique often used by surface mine operations when the overburden becomes too thick for the coal to be mined economically using traditional surface mining methods. Large-diameter (usually 2-4 feet) horizontal holes are drilled as much as 300 feet into the vertical face of the coal bed by an auger. Like a bit used for boring holes in wood, coal augers consist of a cutting head with a screw-like extension. As the auger turns, the head breaks up the coal and the screw carries it back to a conveyor that loads it directly into a truck.

Backfill: The operation of refilling an excavation using material removed during the mining process.

Bench: Specific to surface mining, this refers to the floor(s) of mining excavation areas where backfilling will occur.

Benthic Macroinvertebrate: An animal without a backbone, usually in a nymph or larval stage, living at the bottom of a body of water. Scientists often determine freshwater habitat health by evaluating the quantity and diversity of benthic macroinvertebrates present in the body of water.

Code of Federal Regulations (CFR): A publication that codifies the general and permanent rules and regulations published in the Federal Register by the Executive Branch departments and agencies of the federal government, and which carry the force of law.

Clearing and Grubbing: The process of removing vegetation and large stumps and roots from a site in preparation for topsoil removal or other excavation activities.

Coal Seam: A layer, vein, or deposit of coal.

Contour Mining: A mining method commonly used in eastern mountainous topography where coal is removed in a narrow strip around the hillside. The extent of the cut into the hillside is determined by the depth of overburden at the highwall compared with the thickness of the coal seam.

Council on Environmental Quality (CEQ): An advisory council to the President established by the National Environmental Policy Act of 1969. It reviews the environmental efforts of federal programs, conducts environmental studies, and advises the President on environmental matters.

Cultural Resources: In the aims of historic preservation, all of the physical manifestations of archeology and history are cultural resources. Cultural resources include archeological sites, structures and objects significant to American history and prehistory. Cultural resources may include battlefields, ships, places where treaties were signed, and places of significant events. They are important for their representation of cultures, lifestyles, people, architecture, engineering, arts, and events, for the information they contain, or for associations they have with past people or events. Cultural resources are considered fragile and non-renewable resources, once they are removed, lost or destroyed, they are gone forever.

Cumulative Hydrologic Impact Assessment (CHIA): Before a SMCRA permit can be approved, an assessment of the cumulative hydrologic impacts of all anticipated mining on the hydrologic balance in the cumulative impact area is performed. Before a SMCRA permit can be approved, the CHIA must find that the proposed operation has been designed to prevent material damage to the hydrologic balance outside the permit area. CHIA preparation is an integrated process which embodies a specific application of hydrologic information management at each step of the process. The scope of a CHIA may initially include all components of the ground water and surface water systems in the cumulative impact area. This initial scope can be systematically and logically reduced to those concerns of quantity and quality considered significant to maintaining the hydrologic balance of the area. The process focuses on those aspects of the hydrologic balance that are likely to affect designated uses of water.

Cumulative Impact: The impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless

of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. (40 CFR 1508.7)

Decibel (dB): A unit for expressing the relative intensity of sounds on a scale from zero for the average least perceptible sound to about 130 for the average pain level. If expressed as dBA, the sound is measured on an A-weighted scale which gives more weight to those frequencies that are audible to the human ear (about 500 Hz to about 8000 Hz) and discounts those frequencies outside the band of frequencies audible by the human ear.

Dip: Inclination in degrees of a planar geologic stratum from the horizontal.

Disturbed Area: An area where vegetation, topsoil, or overburden is removed or upon which topsoil, spoil, coal processing waste, underground development waste, or noncoal waste is placed by surface coal mining operations. These areas are classified as disturbed until reclamation is complete and the performance bond or other assurance of performance is released.

Elevation: A general term for a topographic feature of any size that rises above the adjacent land or the surrounding ocean bottom; a place or station that is elevated. The vertical distance from a datum (usually mean sea level) to a point or object on the Earth's surface; especially the height of a ground point above the level of the sea. The term is used synonymously with altitude in referring to distance above sea level, but in modern surveying practice the term elevation is preferred to indicate heights on the Earth's surface, whereas altitude is used to indicate the heights of points in space above the Earth's surface.

Endangered Species: Any species that is in danger of extinction throughout all or a significant portion of its range.

Environmental Assessment (EA): A concise public document prepared to provide sufficient evidence and analysis for determining whether to prepare an Environmental Impact Statement or a Finding of No Significant Impact. An EA includes a brief discussion of the need for a proposal, the alternatives considered, the environmental impacts of the proposed action and alternatives, and a list of agencies and individuals consulted.

Exotic: Those species that occupy habitats of which they did not evolve and often have no natural enemies to limit their reproduction and spread, often at the expense of native plants and animals and, sometimes, of entire ecosystems. The words exotic, invasive, and non-indigenous are often used synonymously.

Fills: Fill structures that are created by the placement of excess spoil in valleys, on hillsides, or on preexisting benches. Although most excess-spoil fills are commonly referred to as valley

fills, most mountaintop-removal and steep-slope mining operations today involve the construction of durable-rock fills (30 CFR 816.71 and 817.71).

Flyrock: Earthen materials which when displaced by blasting, travel through the air or along the ground.

Forb: Any herbaceous plant that is not a grass or grass-like in nature; leafy soft-stemmed plants.

Fugitive Dust: The particulate matter not emitted from a duct or stack that becomes airborne due to the forces of wind or surface coal mining and reclamation operations or both. During surface coal mining and reclamation operations it may include emissions from haul roads; wind erosion of exposed surfaces, storage piles, and spoil piles; reclamation operations; and other activities in which material is removed, stored, transported, or redistributed.

Ground Water: Subsurface water that fills available openings in rock or soil materials to the extent they are considered water saturated.

Haul Road: A road built to carry heavily loaded trucks at a slow speed. The grade is limited on this type of road and usually kept to less than 17 percent of climb in direction of load movement. A road from pit to loading dock, tippel, ramp, or preparation plant used for transporting mined material by truck.

Headwater: The source(s) and upper part of a stream, including the upper drainage basin.

Herbaceous: Term for soft-stemmed grass and forb plant species.

Historic Property or Historic Resource: Any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places. The term "eligible for inclusion in the National Register of Historic Places" includes both properties formally determined as such by the Secretary of the Interior and all other properties that meet the National Register listing criteria.

Highwall: The face of exposed overburden and coal in an open cut of a surface coal mining operation or for entry to underground mining activities.

Hydric: Characterized by, relating to, or requiring an abundance of moisture.

Hydrologic Balance: The relationship between the quality and quantity of water inflow to, water outflow from, and water storage in a hydrologic unit such as a drainage basin, aquifer, soil zone,

lake, or reservoir. It encompasses the dynamic relationships among precipitation, runoff, evaporation, and changes in ground and surface water storage.

Hydrology: The science that relates to the water systems of the earth, the principles of water flow, or the presence of surface or ground water.

Invasive Species: Those species that colonize natural or semi-natural ecosystems, are agents of change, and threats to native biodiversity. The words exotic, invasive, and non-indigenous are often used synonymously.

Land Use: Specific uses or management-related activities, rather than the vegetation or cover of the land. Land uses may be identified in combination when joint or seasonal uses occur.

Material Damage: In the context of 30 CFR 784.20 and 817.121, material damage means any functional impairment of surface lands, features, structures or facilities; any physical change that has a significant adverse impact on the affected land's capability to support any current or reasonably foreseeable uses or that causes significant loss in production or income; or any significant change in the condition, appearance or utility of any structure or facility from its pre-subsidence condition.

Mitigation—“Mitigation” as defined in the National Environmental Policy Act (40 CFR 1508.20), includes: avoiding the impact altogether by not taking a certain action or parts of an action; minimizing impacts by limiting the degree or magnitude of the action and its implementation; rectifying the impact by repairing, rehabilitating, or restoring the affected environment; reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; compensating for the impact by replacing or providing substitute resources or environments.

National Environmental Policy Act of 1969 (NEPA): Declares the national policy to encourage a productive and enjoyable harmony between man and his environment. Section 102 of that Act directs that "to the fullest extent possible: The policies, regulations, and public laws of the United States shall be interpreted and administered in accordance with the policies set forth in this Act, and all agencies of the federal government shall insure that presently unquantified environmental amenities and values may be given appropriate consideration in decision-making along with economic and technical considerations ". (33 CFR Part 325 Appendix B and 42 U.S.C. 4321-4347).

Outcrop: (a) The part of a rock formation that appears at the surface of the ground. (b) A term used in connection with a vein or lode as an essential part of the definition of apex. It does not necessarily imply the visible presentation of the mineral on the surface of the earth, but includes those deposits that are so near to the surface as to be found easily by digging. (c) The part of a

geologic formation or structure that appears at the surface of the earth; also, bedrock that is covered only by surficial deposits such as alluvium. (d) To appear exposed and visible at the earth's surface; to crop out.

Overburden: Designates material of any nature, consolidated or unconsolidated, that overlies a deposit of useful materials, ores, or coal--especially those deposits that are mined from the surface by open cuts.

Premining/Postmining Land Use: The primary uses of the land before and after mining. Some examples of premining/postmining land uses include, but are not limited to: forestry, fish and wildlife habitat, recreation, residential, pastureland, and undeveloped.

Regulatory Authority: The state agency, or Office of Surface Mining Reclamation and Enforcement, which has responsibility for administering the surface mining law in a given geographic area.

Revegetation: Plants that replace original ground cover following land disturbance.

Runoff: That portion of the rainfall that is not absorbed by the deep strata, is used by vegetation or lost by evaporation, or that may find its way into streams as surface flow.

Sediment: Solid material, both mineral and organic, that is in suspension, is being transported, or has been moved from its site of origin by air, water, gravity, or ice and has come to rest on the Earth's surface either above or below sea level.

Sediment Pond: An impoundment used to remove solids from water in order to meet water quality standards or effluent limitations before the water leaves the permit area.

Severance Tax: A tax levied against coal as it is mined, based either on the value of the coal or at a flat rate per ton, used to compensate federal, state, and/or local governments for the value of the portion of the reserve that is extracted.

Spoil: Overburden that has been removed during surface coal mining operations.

Subsidence: Lowering of the ground surface resulting from collapse of mine voids created by the removal of coal following underground or highwall mining.

Topsoil: The upper, outermost layer of soil, which has the highest concentration of organic matter and microorganisms and is where most of the Earth's biological soil activity occurs.

Toxic Material: Earth materials or wastes which, if acted upon by the air, water, weathering, or microbial processes, are likely to produce chemical or physical conditions in soils or water that are detrimental to biota or uses of water.

Valley Fill: A fill structure consisting of any material other than organic material that is placed in a valley where side slopes of the existing valley, measured at the steepest point, are greater than 20 degrees, or the average slope of the profile of the valley from the toe of the fill to the top of the fill is greater than 10 degrees.

Wetland: Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions (Section 404 of the Clean Water Act).

CHAPTER 1. PURPOSE AND NEED

1.1 INTRODUCTION

This Environmental Assessment (EA) has been prepared by the Office of Surface Mining Reclamation and Enforcement (OSMRE), Knoxville Field Office (KFO) to analyze the potential impacts of a proposed surface and underground coal mining operation and reclamation plan. An application for the proposed permit was submitted for review by Kopper Glo Mining, LLC on January 24, 2013.

Pursuant to the Surface Mining Control and Reclamation Act (SMCRA) of 1977, Kopper Glo Mining, LLC must obtain a permit from OSMRE to conduct the proposed surface coal mining and reclamation operation. In accordance with the National Environmental Policy Act (NEPA), OSMRE has developed this environmental compliance document to assist in the agency decision-making process. The proposed decision of permit issuance with modification will allow Kopper Glo Mining, LLC to conduct the surface coal mining and reclamation operation in accordance with SMCRA while ensuring that adverse environmental impacts are minimized.

National Environmental Policy Act (NEPA) requires federal agencies to disclose to the public the potential environmental impacts of projects they authorize. NEPA also requires agencies to consider and analyze reasonable alternatives to projects that are proposed. Lastly, NEPA requires agencies to make a determination as to whether the analyzed action would significantly impact the environment. “Significantly” is defined by NEPA and is found in regulation 40 Code of Federal Regulations (CFR) 1508.27. If OSMRE determines that this proposed permit would have significant effects following the analysis in the EA, then an Environmental Impact Statement (EIS) would be prepared for the proposed permit. If the potential effects are determined to be less than “significant,” a “Finding of No Significant Impact” (FONSI) statement would document the reason(s) why implementation of the selected alternative would not result in significant environmental effects. An EA provides evidence for determining whether to prepare an EIS or a FONSI statement. The EA analyzes the potential effects of approving a federal surface coal mining permit.

This EA has been prepared in accordance with NEPA and the Council on Environmental Quality (CEQ) regulations for implementing NEPA (40 CFR 1500-1508) and in accordance with SMCRA. This document discloses the direct, indirect, and cumulative environmental impacts that would result from the proposed action and alternatives.

1.2 BACKGROUND

The proposed permit area is 1496.3 acres which includes approximately 472.5 acres of surface disturbance which will occur during the 9.2 year life of the operation. The mine is expected to have an average annual production of approximately 360,000 tons and life-of-mine production of approximately 3.3 million tons.

The proposed mine site has been previously affected by pre-law coal mining activities. Approximately 5.1 miles of the pre-existing highwall exposed at numerous locations exists within the proposed permit boundary. These past coal mining operations, most of which occurred over the last 40-50 years, have affected the majority of the proposed disturbed area. Although little or no reclamation occurred on areas that were mined in the 50's, 60's, and early 70's, these areas have, through natural succession, largely reverted to a vegetated condition.

CHAPTER 2. PROPOSED ACTION AND ALTERNATIVES

2.1 INTRODUCTION

This chapter provides background information on existing conditions at the Cooper Ridge mine site, and describes each alternative. Pursuant to 40 CFR 1502.2(e), OSMRE is required to identify and assess the reasonable alternatives to proposed actions that will avoid or minimize adverse effects of these actions upon the quality of the human environment.

2.2 DESCRIPTION OF THE PROPOSED ACTION

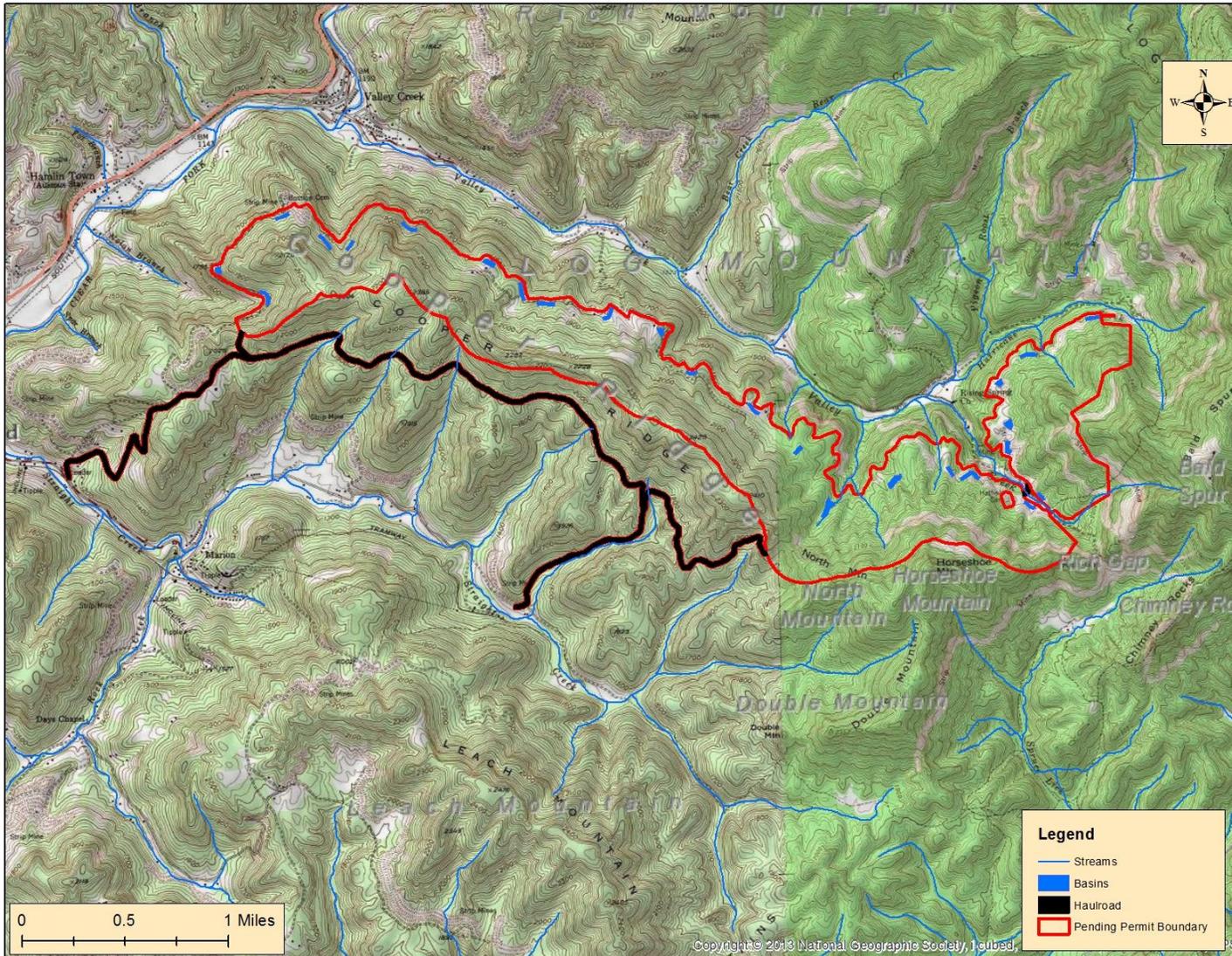
The location of the proposed Cooper Ridge Surface Mine is in Claiborne County, Tennessee near the intersection of Valley Creek Road and State Highway 90, 1.4 miles northeast of the Clairfield community. The proposed mine site is in the Cumberland River watershed and is drained locally by Nolan Branch, Clear Fork, Valley Creek, and Hurricane Creek and various smaller unnamed tributaries of these streams. The proposed permit area is 1,496.3 acres. Approximately 472.5 acres of surface disturbance will occur in the proposed permit area during the 9.2 year life of the operation. Table 2.2 shows the breakdown of disturbed acres. The mine is expected to have an average annual production of approximately 360,000 tons and life-of-mine production of approximately 3.3 million tons. Figure 2.2 shows the location and boundary of the proposed permit area.

With the initiation of the proposed mining operation, existing roads would be improved and basins and associated diversion ditches would be constructed to control surface run-off and divert such run-off to sediment basins. Once basin and ditch construction is completed in a given area, all vegetation will be removed, topsoil / growth medium salvaged for future redistribution, and the area regraded to allow for drilling and blasting of the materials overlying the coal seam. When blasting has loosened the in-situ rock, the spoil materials overlying the coal seam will be moved and the exposed coal seam removed. The disturbed areas within the proposed permit area, with the exception of the haul roads and the sediment ponds, will be backfilled utilizing all reasonably available spoil. Spoil materials generated in association with the proposed mining operation will be of sufficient quantity to eliminate all highwalls created during the proposed mining operation. However, if the maximum cuts proposed in the application are not taken, portions of pre-law highwall on the Jellico coal seam may remain. Once backfilled, the reclaimed areas will then be revegetated with a seed mixture capable of producing a permanent, diverse, and effective ground cover. Trees will also be established. The proposed postmining land use will be undeveloped and fish/wildlife habitat. The haul roads will be retained as permanent structures and sediment basins will be converted to wetlands.

Table 2.2 Permitted Acres

| Description | Acreage |
|------------------------------------|----------------|
| Sediment Basins | 29.1 |
| Bench Access Roads | 23.0 |
| Haul Roads | 87.1 |
| Surface Mine Area | 333.3 |
| Total Surface Disturbance | 472.5 |
| Auger Mine (Underground) | 770.8 |
| Mine Management Area (Undisturbed) | 253.0 |
| Total Permitted Area | 1496.36 |

Figure 2.2. Permit 3270 Location Map



2.3 DESCRIPTION OF ALTERNATIVES

NEPA, CEQ, and SMCRA require a range of alternatives be developed for all environmental assessments. Alternatives provide the basis for analysis of a proposed action. Under all alternatives, SMCRA and all applicable laws and regulations will be upheld to avoid or minimize effects to the human environment and public health and safety.

2.3.1 Preferred Action Alternative (Alternative A)

Approval of Application with Modification - OSMRE may approve the permit application upon finding that the proposed operation, as modified through the technical review process, will meet the requirements of SMCRA and the Federal Program for Tennessee. The technical review process resulted in OSMRE issuing six notices of technical deficiencies during the review period. During the review period, the applicant modified the initial permit application and provided sufficient information to address all items cited during the review process. These items included: conducting mining activities within 100 feet of cemeteries and public roads; incomplete information on migratory birds and wetlands; insufficient geologic information; insufficient geochemical analysis to assess the potential for acid mine drainage (AMD); incomplete and/or inconsistent surface water and ground water data; the need for additional drainage control measures; insufficient information on blasting control measures; insufficient backfilling and grading information; incomplete toxic materials handling plan; and the need for changes to and additional information on topsoil handling, land use, and revegetation.

2.3.2 Permit Application Disapproval Alternative (Alternative B)

Permit Application Disapproval - OSMRE may disapprove the permit application upon finding that the proposed operation will not meet the requirements of SMCRA and the Federal Program for Tennessee.

2.3.3 Alternatives Considered but Rejected

Approval of Application As Initially Submitted - OSMRE may approve a permit application upon finding that the permit application, as initially submitted, will meet the requirements of SMCRA and the Tennessee Federal Program. OSMRE reviewed the proposed application for administrative and technical adequacy and determined that the permit application as initially submitted, did not meet the requirements of SMCRA; therefore, the application as initially submitted did not meet all requirements and was rejected.

No Action - In accordance with 30 CFR 773, OSMRE is required to make a decision (i.e. approve or disapprove) on each application for surface coal mining and reclamation operations submitted to the agency. Accordingly, this alternative will not be considered further. Although the “no action” alternative could not be considered a reasonable alternative under SMCRA,

Alternative B would have essentially the same impacts to the human environment as would the “no action” alternative.

2.4 MINING METHODS

The Cooper Ridge Mine proposes to utilize the contour surface mining, auger mining, and underground mining methods on the Jellico coal seam at elevations that vary from approximately 1,742 ft. at the western end of the proposed permit area to 1,847 ft. at the eastern end of the proposed permit area. Kopper Glo Mining, LLC will utilize bulldozers, front-end loaders, trucks, and graders for mining and reclamation operations within the proposed permit area.

2.5 ACCESS AND HAULROADS

The vast majority of the haul road system the applicant proposes to use was created by prior mining activities and has been in existence for many years. The haul roads have been used at various times over the years for hauling coal and timber from this area as well as providing general access to the area.

2.6 SEDIMENT BASINS

The drainage and sediment control plan designed for this site includes twenty-five on-bench sediment basins that have been designed so that the peak effluent settleable concentration during a 10-year/24-hour precipitation event will not exceed 0.5 milliliter per liter. The basins will be monitored in accordance with the NPDES limits for the site that includes a limitation for total suspended solids of 70 milligrams per liter maximum and 35 milligrams per liter on a monthly average. All runoff from the proposed surface disturbances shall be routed through sediment control including runoff from the haul roads to be permitted as part of this mining operation. Implementation of this proposed drainage and sediment control on the surface mine bench should be more than adequate to protect the streams below the mine site. The sediment basins are proposed to be reclaimed as wetlands, with the areas adjacent to the wetlands planted with native trees, which should provide feed area for bats.

2.7 MINE FACILITIES

All buildings and material storage facilities will be portable structures, which will be relocated as necessary during mining. The structures will be towed from the site upon the permanent cessation of mining. Some of the drop trailers and explosives magazines will be the property of the explosives supply company and will be returned to the company when they are no longer in use. Equipment and employee parking will be within the proposed permit area and will generally be near the working area. No

permanent facilities are proposed for this site.

2.8 RECLAMATION

The proposed postmining land use for this site is undeveloped land and wildlife habitat. A secondary postmining land use of industrial/commercial may be implemented for oil and gas well development, as the oil and gas rights to portions of the property have been leased by external parties as listed in item 17 of this application. Postmining land uses of recreation, or developed water resources would be impractical due to the size, location, and nature of the operation at the site. Postmining land uses of pastureland, grazing land, residential, and forestry would be possible, but this is not the landowners' wishes at this time.

The proposed mining and reclamation plans will restore the natural or historic drainage pattern within the mine area. During reclamation of the mine site, the surface mined areas will be replanted with a mixture of tree seedlings with exfoliating bark. The postmining land use of undeveloped land and wildlife habitat during reclamation of the site, including the planting of grasses, legumes, and trees favorable for wildlife in a pattern to create diversified habitats and food plots, along with leaving brush piles and rock piles to provide nesting areas and habitat. Revegetation will comply with the Appalachian Regional Reforestation Initiative Forestry Reclamation Approach (OSMRE 2017).

CHAPTER 3. AFFECTED ENVIRONMENT

3.1 GENERAL SETTING

The CEQ regulations state that NEPA documents “must concentrate on the issues that are truly significant to the action in question, rather than amassing needless detail” (40 CFR 1500.1(b)). While many issues may arise during scoping, not all of the issues raised warrant analysis in an EA. Issues will be analyzed if: 1) an analysis of the issue is necessary to make a reasoned choice between alternatives, or 2) if the issue is associated with a significant direct, indirect, or cumulative impact, or where analysis is necessary to determine the significance of the impact. Table 3.1 lists the resources considered and the determination as to whether they require additional analysis.

Table 3.1 Resources and Determination of Need for Further Analysis

| Determination¹ | Resource | Rationale for Determination |
|----------------------------------|--|--|
| PI | Topography | See discussion in Section 3.2. |
| PI | Air and Climate Resources | See discussion in Section 3.3. |
| PI | Geology | See discussion in Section 3.4. |
| PI | Water Resources | See discussion in Section 3.5. |
| PI | Vegetation (includes invasive species and upland vegetation) | See discussion in Section 3.6. |
| PI | Wetlands and Riparian Zones | See discussion in Section 3.7. |
| PI | Fish and Wildlife Resources | See discussion in Section 3.8. |
| PI | Special Status Species (includes animal and plant species) | See discussion in Section 3.9. |
| NI | Cultural and Historic Resources | See discussion in Section 3.10. |
| NP | American Indian Concerns | See discussion in Section 3.11. |
| PI | Socioeconomics | See discussion in Section 3.12. |
| PI | Environmental Justice | See discussion in Section 3.13. |
| NI | Visual Resources | See discussion in Section 3.14. |
| NP | Recreation | See discussion in Section 3.15. |
| NP | Paleontology | See discussion in Section 3.16. |

| Determination ¹ | Resource | Rationale for Determination |
|----------------------------|--------------------------|--|
| PI | Solid or Hazardous Waste | See discussion in Section 3.17. |
| PI | Noise | See discussion in Section 3.18. |
| PI | Soils | See discussion in Section 3.19. |
| NP | Prime Farmlands | See discussion in Section 3.20. |
| PI | Health and Public Safety | See discussion in Section 3.21. |
| PI | Public Involvement | See discussion in Chapter 6.1.1 |

¹NP = Not present in the Project Area. NI = Present, but not affected to a degree that detailed analysis is required. PI = Present with the potential for impact analyzed in this EA.

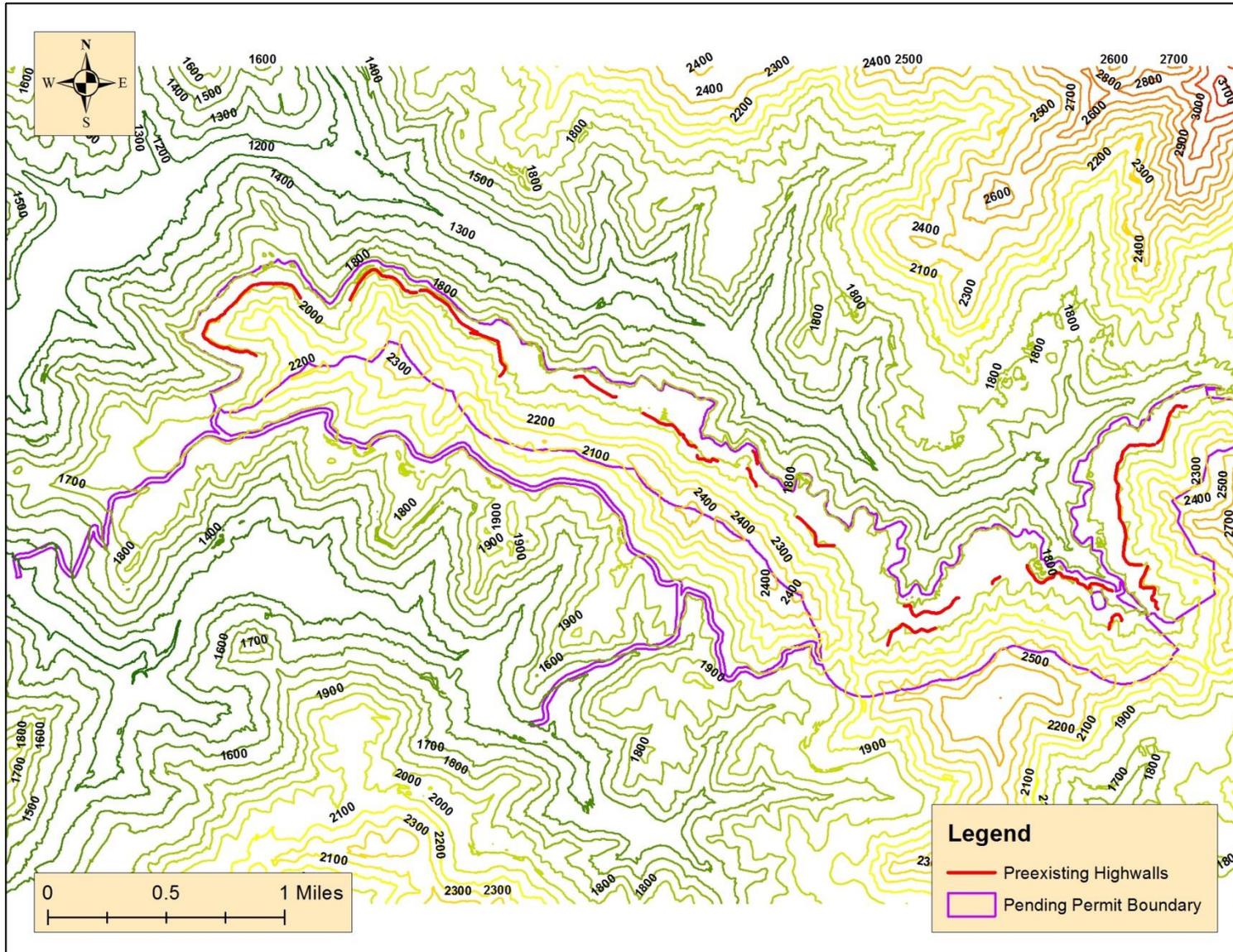
3.2 TOPOGRAPHY

Claiborne County is located in the Appalachian Highlands and covers 434.3 square miles in the northeastern part of Tennessee. The terrain is steep with high ridges and low hollows and is typical of that of the Appalachian Plateau physiographic province. It is well dissected and well drained by deeply entrenched streams. Ridges are generally narrow and winding and natural flat land is mainly restricted to flood plains of major creeks and rivers. Low-order streams are generally V-shaped and have no flood plains. The mountain region has rugged relief with V-shaped steep-walled valleys and narrow even-crested mountain divides.

The highest elevations near the proposed mine site are about 2,600 feet while the valley bottoms are around 1,400 feet. Tennessee contains Level III and IV ecoregions as determined by the Environmental Protection Agency. These ecoregions were defined by similarities in geology, physiography, vegetation, climate, soils, land use, wildlife, and hydrology. The proposed project area is located within the Central Appalachian ecoregion (69) which drains 6,116 square miles. Specifically the project is within the Level IV ecoregion 69e (Cumberland Mountain Thrust Block) which encompasses 697 square miles. The mountains in this area are characterized by steep ridges with narrow valleys and coves. Ecoregion 69e contains elevations ranging from approximately 980-4,139' and contains cool high gradient streams featuring riffle and pool habitat typically dominated by boulder and cobble substrates (Figure 3.2).

Due to portions of the proposed permit area being surface mined pre-SMCRA, preexisting highwalls occur on the site. Approximately 5.11 miles of preexisting highwalls will be reclaimed during the re-mining and reclamation phases.

Figure 3.2. Topography Map



3.3 AIR AND CLIMATE RESOURCES

3.3.1 Local Climate

Claiborne County, Tennessee, receives 51.9 inches of rain per year with 14.6 inches of snowfall. The number of days with any measurable precipitation is 126. On average, there are 206 sunny days per year. The average maximum high temperature in July is 86 degrees. The minimum low average temperature in January is 22.2. Sperling's comfort index for Claiborne County is 49 out of 100, where a higher score indicates a more comfortable year-around climate. The index is based on the total number of days annually within the comfort range of 70-80 degrees, and applies a penalty for days of excessive humidity (Southeast Regional Climate Center 2016).

Publically available weather data near the project area is located at the surface weather observation station at Jacksboro airport (ID: KJAU). The site records temperature, barometric pressure, relative humidity, precipitation, and wind speed and direction. The air quality monitor at New Tazewell, TN measures Air Quality Index (AQI), Total Suspended Particulate (TSP), Lead, Carbon Monoxide (CO), Sulfur Dioxide (SO₂), Nitrogen Dioxide (NO₂), Ozone, Particulate Matter (PM)₁₀, and Particulate Matter (PM)_{2.5}.

Federal actions must be evaluated in accordance with the National Environmental Policy Act (NEPA) and the Council on Environmental Quality (CEQ) Regulations Implementing the Procedural Provisions of NEPA. The CEQ has issued draft guidance to help Federal agencies decide when and how to consider the effects of GHG emissions and climate change in their evaluation of all proposed actions. In this guidance, CEQ recommends that agencies such as OSMRE should consider the following factors when addressing climate change:

1. Potential effects of a proposed action on climate change as indicated by its GHG emissions.
2. Environmental implications of climate change over the life of the proposed project.

3.3.2 Regulatory Requirements

The regulatory framework for air quality includes both federal and state rules, regulations, and standards promulgated by the EPA and implemented by the TDEC. The Clean Air Act (CAA) established the National Ambient Air Quality Standards (NAAQS) in 1971 for seven criteria pollutants. The criteria pollutants include carbon monoxide (CO), lead, nitrogen dioxide (NO₂), ozone, particulate matter 10 microns (PM₁₀) or less in diameter, particulate matter 2.5 microns (PM_{2.5}) or less in diameter, and sulfur dioxide (SO₂) (Table 3.3.2).

Pursuant to the CAA, the EPA has developed classifications for distinct geographical regions known as Air Quality Control Regions (AQCR). In Tennessee, the state has been divided into

eight multi-county areas that are generally based on topography and have similar airshed characteristics. The EPA designates whole or partial counties as Attainment, Non-Attainment, or Maintenance for each criteria air pollutant. Regions classified as Attainment areas are areas in which the pollutant has not exceeded the NAAQS. A Non-Attainment classification represents an area in which the pollutant has exceeded the NAAQS. The Maintenance designation is used when monitored pollutants have been reduced from the Non-Attainment to the Attainment levels. Claiborne County has been designated as an Attainment area for all criteria pollutants based on monitoring results that were below the applicable NAAQS (all but six counties in TN are currently in attainment of all NAAQS).

Table 3.3.2 National Ambient Air Quality Standards

| Pollutant | | Primary/ Secondary | Averaging Time | National Standard | Form |
|--|-------------------|--------------------------|----------------------------|------------------------|---|
| Carbon Monoxide (CO) | | Primary | 8-hour | 9 ppm | Not to be exceeded more than once a year |
| | | | 1-hour | 35 ppm | |
| Lead | | Primary and secondary | Rolling 3 month average | 0.15 µg/m ³ | Not to be exceeded |
| Nitrogen Dioxide (NO ₂) | | Primary | 1-hour | 100 ppb | 98th percentile of 1-hour daily maximum concentration, averaged over 3 years |
| | | Primary and secondary | Annual | 53 ppb | Annual Mean |
| Ozone | | Primary and secondary | 8-hour | 0.070 ppm | Annual fourth-highest daily maximum 8-hr concentration, averaged over 3 years |
| Particle Pollution | PM _{2.5} | Primary | Annual | 12 µg/m ³ | Annual mean, averaged over 3 years |
| | | Secondary | Annual | 15 µg/m ³ | Annual mean, averaged over 3 years |
| | | Primary and Secondary | 24-hour | 35 µg/m ³ | 98th percentile, averaged over 3 years |
| | PM ₁₀ | Primary and secondary | 24-hour | 150 µg/m ³ | Not to be exceeded more than once per year on average over 3 years |
| Sulfur Dioxide (SO ₂) | | Primary | 1-hour | 75 ppb | 99th percentile of 1-hour daily maximum concentrations, averaged over 3 years |
| | | Secondary | 3-hour | 0.5 ppm | Not to be exceeded more than once per year |

Source: <https://www.epa.gov/criteria-air-pollutants/naaqs-table> as of February 14, 2017

µg/m³ = micrograms per cubic meter of air

ppm = parts per million, ppb = parts per billion

3.3.3 Onsite Air Quality

Air quality for this project is covered under Tennessee Air Pollution Control Board Operating Permit 47097P (Appendix F).

3.3.4 Climate Change

The primary natural and synthetic greenhouse gases (GHGs) in the Earth's atmosphere are water vapor, carbon dioxide (CO₂), methane, nitrous oxide, and fluorinated gases. GHGs allow heat from the sun to pass through the upper atmosphere and warm the earth by blocking some of the heat that is radiated from the earth back into space. As GHG concentrations increase in our atmosphere they impact the global climate by further decreasing the amount of heat that is allowed to escape back into space. Many GHGs are naturally occurring in the environment; however, human activity has contributed to increased concentrations of these gases in the atmosphere. Carbon dioxide is emitted from the combustion of fossil fuels (i.e., oil, natural gas, and coal), solid waste, trees and wood products, and also as a result of other chemical reactions (e.g., manufacture of cement). Methane results from livestock and other agricultural practices and by the decay of organic waste in municipal solid waste landfills. Methane is also emitted during the production and transport of coal, natural gas, and oil. Nitrous oxide is emitted during agricultural and industrial activities, as well as during combustion of fossil fuels and solid waste. Fluorinated gases, while not abundant in the atmosphere, are powerful GHGs that are emitted from a variety of industrial processes and are often used as substitutes for ozone-depleting substances (e.g., chlorofluorocarbons, hydrochlorofluorocarbons, and halons).

The EPA has taken action to regulate six key GHGs - CO₂, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. Because CO₂ is the most prevalent of the regulated GHGs, the EPA references the potential impact of GHG emissions in terms of their equivalence to CO₂ or CO₂e. In addition to the EPA estimates, the International Energy Agency estimated global emissions of CO₂e to be 29,000 million metric tons (mmt) in 2008. U.S. Energy Information Administration estimated the total CO₂e emissions in 2014 to be 103.5 mmt for the State of Tennessee.

The EPA tracks GHG emissions in the U.S. by source sector (e.g., industrial, land use, electricity generation, etc.), fuel source (e.g., coal, natural gas, geothermal, petroleum, etc.), and economic sector (e.g., residential, transportation, commercial, agriculture, etc.) With so many GHG emission sources nationally, from cattle to vehicles to electric power generators, no single source is likely to represent a significant percentage of national emissions.

Unlike other air pollutants, NAAQS do not exist for GHGs. In its Endangerment and Cause or Contribute Findings for Greenhouse Gases under Section 202(a) of the CAA (FR EPA-HQ-OAR-2009-0171), the EPA determined that GHGs are air pollutants subject to regulation under

the CAA. GHGs' status as pollutants are due to the added long-term impacts they have on the climate because of their increased concentrations in the earth's atmosphere. Ongoing scientific research has identified that anthropogenic GHG emissions impact the global climate. Industrialization and the burning of fossil fuels have contributed to increased concentrations of GHGs in the atmosphere. GHGs are produced from both the direct process of coal mining as well as from the combustion of the mined coal. The amount of GHG emissions associated with both of these processes varies greatly based on mining techniques and combustion methodologies used.

3.4 GEOLOGY

The project area is located in Claiborne County, Tennessee on the Eagan and Fork Ridge, TN/KY U.S.G.S. quadrangle maps. The proposed mine site is located along the north side of Cooper Ridge at latitude North 36.55517° and longitude West 83.88651°. The proposed mine site is situated within the Cumberland Block. The Cumberland Block is bounded by the Pine Mountain Fault Zone to the west, the Jacksboro Tear Fault to the south, the Cumberland Mountains to the east, and extends north into Kentucky.

Regionally, strata dips to the northwest, away from the Cumberland Mountains. South of Clear Fork Creek there is a northeast trending syncline that extends for about seven miles diagonally across the Eagan quadrangle, which is part of the Middlesboro Syncline. Paralleling this syncline is the Sand Lick Ridge Anticline, which extends for approximately the same distance as the adjacent syncline and is approximately 1.2 miles wide. Southeast of this anticline, along Tackett Creek, is an area of highly disturbed rock with numerous folds and near vertical bedding which is thought to be the surface exposure of a steeply dipping reverse fault. The local dip of the coal seams to be mined is approximately 0.4 degree to the southeast.

The mine site stratigraphy consists of sedimentary units within the Slatestone and Indian Bluff Groups. These units are within the middle Pennsylvanian age rocks and are a relatively flat lying and undisturbed rock group. The Slatestone Formation includes all strata between the top of the Poplar Creek Coal seam and the top of the Jellico (locally known as the Mingo or Mason) Coal seam. Included in this formation are the Poplar Creek, Ant, Coal Creek (locally known as the Kent), Petros, Blue Gem (locally known as the Rich Mountain), Terry Creek, and Jellico (locally known as the Mingo or Mason) coal seams. The Ant, Petros, and Terry Creek coal seams are not known to be present locally. Also included in this formation are several sandstone units, including the Stephens, Lower Petros, Upper Petros, Sand Gap, and Newcomb Sandstone, which is located only a few feet below the Jellico (Mason) coal seam. The Newcomb Sandstone is believed to be thirty to forty feet thick in this area. The Indian Bluff group includes all strata between the top of the Jellico (Mason) Coal seam and the top of the Pioneer Sandstone. Included in this formation are the Joyner, Stockstill, and Indian Fork coal seams. None of these coal

seams are known to be present, locally. Also included in this formation are several sandstone units, including the Seeber Flats, Stockstill, Indian Fork, and Pioneer Sandstones.

The coal seams to be mined are the Jellico (locally known as the Mason or Mingo) coal seams. Both pre- and post SMCRA surface and underground mining of the Jellico (Mason) coal seams has occurred at this site. During the exploration conducted for this site, the permittee drilled 17 core holes and approximately 170 rotary drill holes to ascertain the extent and quantity of coal at the site. The depth to, and thickness of, the coal seams was recorded at each of the rotary holes. The core holes were logged and sampled for overburden analysis. Based upon the exploratory drilling conducted, the elevation of the Jellico (Mason) Coal seam varies from 1,847 feet at the western end of the permit area to 1742 feet at the eastern end of the permit area.

3.5 WATER RESOURCES

Kopper Glo Mining, LLC's proposed Cooper Ridge Surface Mine is located in the Cumberland River watershed. The principal drainages for this proposed site are Clear Fork, Valley Creek, a tributary of Clear Fork, Hurricane Creek, a tributary of Valley Creek, Straight Creek, and Rock Creek. Drainage from the proposed permit area lies within in OSMRE's Cumulative Impact Areas (CIA) 10, Subareas 1A and 1B. The proposed mine site is drained locally by numerous smaller unnamed headwater tributaries of the aforementioned streams. The State of Tennessee's surface water use classifications for these streams include fish and aquatic life, recreation, irrigation, and livestock watering and wildlife. The underground mining portion of the permit falls within the Spruce Lick Branch drainage (Tackett Creek Watershed). Since this portion of the mining is strictly underground and not surface mining, Spruce Lick Branch will not be affected.

3.5.1 Surface Water

OSMRE has prepared cumulative hydrologic impact assessment (CHIA) for the subwatershed or trend stations on Clear Fork (TS-1A). The CHIA for the trendstation, hereinafter referred to as subarea, was developed for this proposed mining operation to consider the combined hydrologic impacts on both the ground water and surface water resources resulting from existing and anticipated mining operations. A more detailed description of the existing environment, as it relates to both surface and ground water is incorporated into the above CHIA and has been included in this decision document. Additional information describing the existing environment may also be found in the permit application and OSMRE's environmental impact statement for the Tennessee Federal Program (OSMRE-EIS-18).

3.5.2 Groundwater

Ground water movement in the proposed permit and adjacent areas is anticipated to flow downward through fracture systems until reaching relatively impermeable shale units. Upon encountering these more impermeable shale units, the localized ground water movement would then be perpendicular to topographic contours until appearing at the surface as springs and seeps.

No ground water users were identified within the proposed permit area. One ground water source, a spring, was identified and found to be in use within a 0.5 mile radius of the proposed mine site. This spring is located at the 1,280 ft. elevation approximately 100 ft. north of the permit boundary between proposed sediment basins SSCC04 and SSCC05. The spring is approximately 125 ft. in elevation below the Coal Creek coal seam. This spring serves as a source of water for one residence. Municipal (Clear Fork Utility District) water is also available in this area. The utility district obtains its water from wells located in the valley bottom approximately 1 mile west of the proposed mine site. The utility district wellheads are at an approximate elevation some 650 feet below the lowest coal seam elevation proposed to be mined.

3.6 VEGETATION

The vegetative cover type of the previously unmined areas surrounding the proposed permit area is mixed mesophytic forest. The forest canopy is mostly composed of various species of both red and white oaks, hickories, yellow poplar, red maple and yellow pine. The understory includes stands of laurel and rhododendron; particularly along the streams in the vicinity of the proposed mine site, sourwood, dogwood, sassafras, oaks, hickories, and numerous shrubs and berry plants. The previously mined or disturbed portions of the proposed permit area are currently supporting a vegetative cover comprised of various herb and early successional woody species.

The current land use within the proposed permit area is best defined as undeveloped forest with a secondary use of fish and wildlife habitat. The vast majority of the proposed haulroads that would provide access between the proposed mine site and the public roads are existing structures that were left in place because of previous mining activities. These existing structures total approximately 87.1 acres of the proposed 472.5 acres of surface disturbance. The pre-existing roads will require minimal modifications (e.g. resurfacing, widen sections of the road, replace or add culverts, etc.) in order to be used at this proposed mine site. A number of oil and gas wells and associated access roads are present in the areas surrounding the proposed mine site. Local or state governments are not known to have specific zoning restrictions or land use limitations / plans for this area. The current surface owner of the property has reportedly developed a land management plan for their holdings in this area. This plan includes some level of management of the property for the purpose of extracting the timber resource and provides for

limited access to the property for the purposes of hunting and fishing. Under the surface owner's current policy concerning property access, hunting / fishing rights are leased to individual groups. Members of these groups then have the right to limited access to leased areas. Access is limited to the extent that should any active mining or logging operations be occurring within a leased area, then the lessee is precluded by the language of the lease from entering the areas that are being mined and/or logged. Without the specific permission of the surface owner, no other public access to the property is allowed beyond that which is available via public roads.

Much of the proposed permit area has historically been used for coal mining, logging, and oil / gas exploration. The closest residential properties are located in the Hamlin Town community approximately 0.4 miles from the proposed mine site. Numerous residential properties and a few church and business properties are found in the Clairfield community approximately 1.2 miles west of the proposed permit area and in the Hamlin Town community approximately 0.6 miles northwest of the proposed permit area. Clairfield Elementary School is located approximately 0.4 miles northwest of the proposed mine site. Tennessee State Highway 90, which passes through Clairfield and Hamlin Town and enters Kentucky at the Pruden community, is the principal public roadway through this portion of Claiborne County. At its closest point, Highway 90 is located approximately 0.5 miles north of this proposed mine site. Valley Creek Road, an unpaved county road, parallels the northeast side of the proposed mine site.

3.7 WETLANDS AND RIPARIAN ZONES

Under existing State and Federal statutes and regulations, regulatory authority for determination of jurisdictional wetlands fall largely to State (TDEC) and Federal (U.S. Army Corps of Engineers) Clean Water Act agencies. TDEC and the Corps participated in the site visits that were held during the course of the review of this proposed application. Approximately 3.55 acres of wetland areas were identified as being present in various locations along the proposed mine bench area. These wetland areas are delineated on the Mining Operations Map and Environmental Resources Map included in the proposed permit application. The applicant has indicated their intent to avoid these wetland areas whenever possible. However, should any wetland area be disturbed, the applicant indicates their intent to (1) secure any required clean water-related permits (e.g. ARAP and/or 404 permit) before initiating disturbance to those wetlands, and (2) mitigate for such disturbances by conversion of sediment basins to wetland areas when no longer needed for sediment control purposes. No floodplains or wild and scenic rivers were identified that would be affected by the proposed mining and reclamation operation.

A review of the NPS web site at <http://www.nps.gov/nrcr/programs/rtca/nri/> indicated that the closest river or stream segment identified under the NPS's Nationwide Rivers Inventory (NRI) is a segment of Powell River located some 7 miles east southeast of the proposed mine site and

Stinking Creek located approximately 6.5 miles west of the proposed site. Flow from this proposed permit area will not enter either of the watersheds associated with the above referenced NRI stream segments. The NRI is a listing of more than 3,400 free-flowing river segments in the United States that are believed to possess one or more "outstandingly remarkable" natural or cultural values judged to be of more than local or regional significance. Under a 1979 Presidential directive, and related Council on Environmental Quality procedures, all federal agencies must seek to avoid or mitigate actions that would adversely affect one or more NRI segments.

3.8 FISH AND WILDLIFE RESOURCES

The diversity of the wildlife habitat within the proposed mine site and adjacent areas has likely been impacted by recent logging and coal mining activities that occurred between the 1950's and today. Riparian areas, vegetated areas adjacent to bodies of water, are located within the areas adjacent to the proposed mine site. These zones of integration, ecotones, enhance diversity by providing subtle change from one vegetative type to another. These ecotones support wildlife species from the distinct vegetative communities as well as adaptable species that tend to colonize such transitional zones.

3.8.1 Mammals

Mammals within the proposed mine site and surrounding area consists primarily of upland forest species such as, but not limited to, white-tail deer, turkey, raccoon, bobcat, eastern gray squirrel, eastern cottontail rabbit, red and gray fox, opossum, striped skunk, and numerous small mammals.

3.8.2 Big Game

In describing the wildlife resources, it is also noteworthy that the NCWMA is one of two places in East Tennessee where wildlife organizations are attempting to reestablish elk populations. Between 2000 and 2008, there have been five releases of elk in the NCWMA. A total of 201 elk have been released to date. In 2009, the population was estimated at just over 300 (TWRA, 2013). Although the principal elk release site is an estimated 28 miles southwest of the proposed permit area, given the range of this species, TWRA has included the part of Claiborne County where this proposed site is located in their elk restoration zone, an area where TWRA provides special protective measures and management practices to facilitate restoration of the species in Tennessee.

3.8.3 Migratory Birds

Recent studies by members of the “birding” community (Rosenburg et.al. 2000) reportedly found that the Cumberland Plateau physiographic province, and particularly the Cumberland Mountains, supported a relatively abundant population of neotropical songbirds. Cerulean warbler populations were most abundant in the area formerly known as Royal Blue Wildlife Management Area [now part of the North Cumberland Wildlife Management Area (NCWMA)] and Frozen Head State Park (FHSP), located approximately 25 and 40 miles respectively from the proposed mine site proper. Many of these bird species are reportedly on the decline for reasons that may include deforestation in Central and South America, forest fragmentation in North America, and other forms of habitat loss (Beachy, 2005 and Rosenberg, 2000). Although currently given no legal protection status under the Endangered Species Act, the cerulean and golden-winged warblers are identified as species “in need of management” by the State of Tennessee and are species of concern to organizations such as “Partners in Flight”. The U.S. Fish and Wildlife Service (FWS) was petitioned to consider listing the cerulean warbler and the golden-winged warbler. In a December 6, 2006 decision, the FWS determined that an action to list the cerulean warbler was not warranted. At present, the proposal to list the golden-winged warbler is under review.

Cerulean warblers are relatively common summer residents in mesic hardwood forests of the Cumberland Plateau area. The species typically “occupies mixed age to mature stands, usually with open understory and scattered canopy gaps” (TVA, 2002). The type habitat alterations described above in association with the surface mining activities that occurred in the late 1960’s – early 1970’s would be reasonably assumed to have adversely impacted the cerulean warbler in the proposed permit area by adversely affecting its preferred habitat. The golden-winged warbler on the other hand, may have benefited from the very same habitat changes that likely adversely impacted the presence of the cerulean warbler. The golden-winged warbler “occupies old fields and revegetated surface mines with ground cover of grasses and forbs, clumps of shrubs, and scattered trees” (TVA, 2002).

In a May 21 – 23, 2013 unpublished bird survey conducted in the Valley Creek watershed, a total of 40 bird species were identified (Apogee, June, 2013). Five of the bird species are identified as species of conservation concern. Although no golden-winged warblers were identified, cerulean warblers were found at 7 of the 28 locations where birds were surveyed. The other 4 species of conservation concern included the wood thrush, prairie warbler, worm-eating warbler, and Kentucky warbler. This survey was conducted approximately 0.25 – 1 mile from the proposed Kopper Glo Mining, LLC mine. Survey locations were generally at an elevation of 2,300 to 2,400 ft. Although disturbances associated with this proposed mine site will generally occur between the 1,750 and 1,850 ft. elevations, these two areas otherwise have similar geographic, topographic, and vegetative cover conditions. Given the geographic, topographic, and vegetative

similarities between these two sites, it is reasonable to assume that this survey would be reflective of those species present on the proposed Kopper Glo Mining, LLC mine site.

A review of the Audubon's web site revealed that there were no Important Bird Areas identified in Claiborne County.

3.8.4 Reptiles and Amphibians

Different species of reptiles and amphibians inhabit the proposed permit area. The Tennessee Wildlife Resource Agency (TWRA) website contains a full list of species that occur in Tennessee.

3.8.5 Fisheries

Fishery resources within the proposed permit area are likely to be very limited to non-existent as the steep topography and ephemeral / intermittent nature of the surface flow make it unlikely a fish population could be sustained. However between 500 and 1,000 feet below or downstream of the proposed mine site, stream gradients are much less and flow patterns are likely to be more conducive to sustaining at least a seasonal fishery resource. Fishery resources at locations closer to the proposed mine site are expected to be limited to non-game species typical of headwater habitats. These habitats are normally dominated by cyprinids (minnows) and percids (darters). Clear Fork, Straight Creek, and Valley Creek downstream of the proposed mine site each sustain a year-round fishery resource. The quality of the fishery resources in the vicinity of this proposed mine site are best described in the fish surveys that have been conducted over the years in the vicinity of this proposed mine site.

There have been a number of fish surveys conducted over the last 25 years in the streams surrounding this proposed mine site. Records available to OSMRE show that at least 8 surveys were conducted in the Straight Creek / Rock Creek watersheds between 1989 and 2016. Only the 1989 survey identified blackside dace as being present within the stream system surrounding this proposed mine site. In the 1989 survey, a total of 3 blackside dace were identified in a reach of Straight Creek located from 0.33 miles to 1.2 miles upstream of the proposed mine site (Etnier, 1989). A 2013 fish survey was conducted along Valley Creek and Hurricane Creek and no blackside dace were found.

With the exception of the 1989 survey, all fish surveys for the Straight Creek and Valley Creek watersheds are available for public review in the OSMRE Knoxville Field Office. Information on the 1989 survey was made available to OSMRE through the DNA listed species database.

On April 6, 2016, Biological Systems Consultants, Inc. conducted a macroinvertebrate stream survey in the Straight Creek watershed. Macroinvertebrates were surveyed at 5 locations on

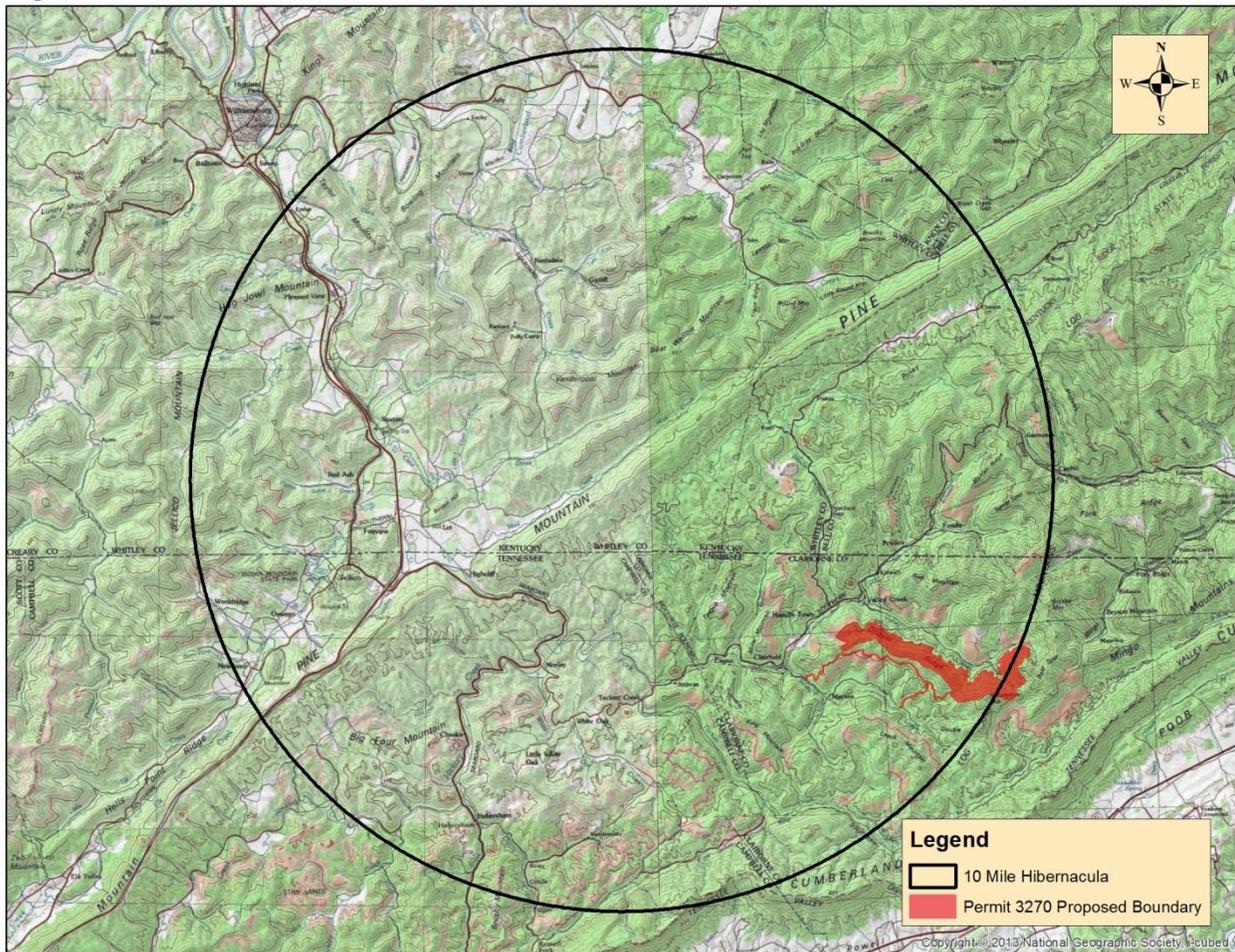
Straight Creek and Rock Creek. The sites were surveyed using TDEC's biorecon method (TDEC 2011). The 5 sites were not supportive of their designated use with stream macro TMI scores ranging from 24 to 30 (a score of 32 is required to be considered fully supporting).

In March 2014, Technical Water Laboratories, Inc. conducted a macroinvertebrate stream survey in the Valley Creek watershed. Macroinvertebrates were surveyed at 5 locations on Valley Creek and Hurricane Creek. The sites were surveyed using TDEC's biorecon method (TDEC 2011). All 5 survey sites were rated as non-impaired or fully supportive of its stream use classification (fish and aquatic life). The TMI scores ranged from 38 to 42 (a score of 32 is required to be considered fully supporting).

3.8.6 Bats

Four recent surveys conducted in the general area of this proposed mine site failed to identify any use of these areas by Indiana bats. However, 3 of those surveys did identify the northern long-eared bat as being present in this area. In an August 2010 survey conducted approximately 1.1 miles south southwest of the proposed mine site, 8 bats, including 1 northern long-eared bat, were captured and released (Aquatic Resources Management, LLC, 2010). In a June 2011 survey conducted approximately 7.2 miles southwest of the proposed mine site, 8 bats, including 4 northern long-eared bats, were captured and released (Copperhead Environmental Consulting, 2011). In a late June and early July 2013 survey conducted approximately 0.8 miles southeast of the proposed mine site, 10 bats including 4 northern long-eared bats were captured and released (Biological Systems Consultants, 2013). An August 2013 mist net survey conducted approximately 0.6 miles southwest of the proposed mine site resulted in the capture and release of 4 bats. No Indiana bats or northern long-eared bats were identified as using this area. However, the acoustic monitoring conducted in association with this site did detect the use of this area by gray bats, a species federally listed as endangered (Copperhead Environmental Consulting, 2013). Given the geographic, topographic, and habitat similarities between the proposed mine site and these four survey locations, it is not unreasonable to assume that these surveys would to a large degree be reflective of those species likely to be present on or in close proximity to the proposed Kopper Glo Mining, LLC mine site. The proposed mine site is within approximately 8 miles southeast of Limestone Cave. Figure 3.8.7 shows the proposed permit application in relation to the 10 mile buffer placed around the cave hibernacula.

Figure 3.8.7. Closest Bat Hibernacula in Reference to Permit Area



3.9 SPECIAL SPECIES STATUS

In correspondences dated January 29, and June 27, 2013, OSMRE provided the FWS and TDEC’s Division of Natural Areas (DNA) an opportunity to comment on the proposed application. DNA responded on March 4, 2013 and on July 17, 2013. Information made available to OSMRE from DNA’s records identified the presence of both Federal and State-listed species in the vicinity of the proposed permit area. The arrow darter, emerald darter, rosyface shiner, and silverjaw minnow were identified in earlier stream surveys within 1 mile downstream of the proposed permit area. The silverjaw minnow is listed by the State as “threatened” while the other 3 species are listed by the State as “deemed in need of management.” The blackside dace, State and Federally listed as threatened, was identified in earlier stream surveys within 1 mile upstream of the proposed permit area. Additional State-listed species have been identified at locations between 1 and 4 miles from the proposed permit area. These species include the golden-winged warbler, cinereus shrew, smoky shrew, southeastern shrew, southern bog lemming, barn owl, and one plant species. The golden-winged warbler, cinereus shrew, smoky

shrew, southeastern shrew, southern bog lemming, and barn owl are listed as “deemed in need of management.” The golden-winged warbler is also being considered for listing under the Federal Endangered Species Act. The one plant species is listed by the State as “special concern.”

3.9.1 Threatened, Endangered, and Candidate Species

The Kopper Glo Mining, LLC permit application incorporated measures to help protect aquatic and terrestrial species from impacts and to restore habitats conducive to the recovery of these species. Details of the measures to protect / enhance habitat for aquatic and terrestrial species of concern are presented in the impact analysis, Section G.5, below.

In letters dated July 7, 2009 and February 12, 2010, FWS indicated that their records showed two Federally-listed threatened species (blackside dace and Indiana bat) occurred in the vicinity of the proposed mine site. On October 2, 2013, the FWS published a proposed rule to list the northern long-eared bat (NLEB) as an endangered species. Information available to OSMRE confirms that both the Indiana and northern long-eared bat species are known to be present in this area. A review of records available to OSMRE indicated that the blackside dace is or has historically been located in seven watersheds in this part of Claiborne County; Buffalo Creek, Little Tackett Creek, Little Yellow Creek, Rose Creek, Spruce Lick Branch, Straight Creek, and Bennett’s Fork. Of these seven streams, only Straight Creek will receive drainage from the proposed mine site. While coal mining would not occur within the Straight Creek watershed, under the proposed mine plan, the applicant has indicated their intention to haul coal from the mine site via existing haul roads located within this watershed. Potential impacts to the blackside dace, Indiana bat, and northern long-eared bat and measures to prevent, minimize, and/or mitigate these impacts were developed and evaluated in a series of correspondences between the OSMRE and the applicant.

3.10 CULTURAL AND HISTORIC RESOURCES

Two cemeteries are present in areas adjacent to the proposed mine site. Bostica Cemetery is located along the northwest end of the proposed mine site while Hatmaker Cemetery is located approximately 500 feet west of Valley Creek Road near the approximate location where the proposed mine site will cross Valley Creek Road. The applicant has identified these cemeteries in the proposed mine permit application and will maintain a minimum 100 foot buffer between mining activities and the cemeteries.

In a letter to OSMRE dated January 19, 2010, the State Historic Preservation Officer (SHPO) stated that it was their opinion that no National Register listed or eligible properties would be affected by this proposed undertaking.

OSMRE considered and sought input from the public and other agencies as to whether any known historical or cultural resources are present in or near the proposed permit area. Comments were received from the public relevant to the protection of the two cemeteries present adjacent to the south end of the proposed mine site. The applicant proposes to maintain a 100 foot buffer between proposed mining activities and the cemeteries and to restore vehicle access to the cemetery for which the proposed mining would remove the existing jeep trail to the cemetery. OSMRE has determined that the protective measures proposed by the applicant should be sufficient to ensure the integrity of the two cemeteries.

The response received January 19, 2010, from the Tennessee State Historic Preservation Officer indicated that no historic or archaeological resources were known to exist in this area. Other than the aforementioned cemeteries, no areas were identified by OSMRE during the pre-mine review of the proposed permit area that would cause concern related to impacts to these type resources. Each applicant for a coal mine permit is notified in Section 10 of an approved permit that if, during the course of the mining operation, previously unidentified cultural resources are discovered, the permittee shall ensure that the site(s) is not disturbed and shall notify the Regulatory Authority (OSMRE). The Regulatory Authority, after coordination with the Tennessee State Historic Preservation Officer, shall inform the permittee of necessary actions required. After having considered the above information, OSMRE has concluded that no impacts are anticipated on historical or archaeological resources.

3.11 AMERICAN INDIAN CONCERNS

American Indian tribes were not directly contacted during the proposed permit review process. The permit is on private, non-tribal land and does not have the potential to effect tribal lands. No comments were received during public scoping and comment periods.

3.12 SOCIOECONOMICS

From data available on the U.S. Census Bureau web site (www.census.gov), in 2013, the Claiborne County population was estimated at 31,560. In 2012, mining, quarrying, and oil and gas extraction related jobs ranked approximately ninth among the 19 industry employment categories in Claiborne County. In the 2008 – 2012 period, it was estimated that 23 percent of the population in Claiborne County lived below the poverty level compared to 17.3 percent for the state as a whole. According to figures released for 2013, approximately 95.9 percent of the population in Claiborne County was classified as White/non-Hispanic while 74.9 percent of the state population was so classified. Approximately 0.3 percent of the population was classified as American Indian and Alaska Native while 0.4 percent of the state population was so classified.

Newspaper advertisements were published once a week for four consecutive weeks notifying the public of the coal mine permit application and inviting the public to comment. In conjunction with the publishing of the fourth ad, a 30-day period began for interested parties to submit their comments and/or request an informal conference/public hearing on the proposed coal mine application. Comments were received from the public during the comment period and a public hearing was requested. The public hearing was held on November 29, 2012. Twelve individuals in attendance made statements concerning the proposed mining operation. Comments were solicited from other government agencies. OSMRE received comments from FWS and SHPO. Comments received were generally related to concerns about possible impacts to water quality, aquatic species including threatened/endangered species, residential structures (blasting and flooding), air quality, aesthetics, forest flora and fauna, public health, historic / cultural resources, and economic interests. A joint public notice from TDEC and OSMRE was issued on November 9, 2016 for the proposed issuance of NPDES/OSMRE permits for this project. The hearing occurred at the TDEC office in Knoxville on Dec 20, 2016. Comments continued to be accepted until Dec 28, 2016. All comments received regarding the proposed operation and reclamation plan were given serious consideration during the technical review process.

3.13 ENVIRONMENTAL JUSTICE

Pursuant to Presidential Executive Order 12898, “Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations (February 11, 1994),” (<http://www.nonnoise.org/library/execords/eo-12898.htm>) federal agencies are required to evaluate the impacts of a federal action (e.g., issuing an OSMRE permit in Tennessee) to determine if the proposed action will disproportionately affect a minority, low income, or culturally distinct community or population. This executive order, commonly referred to as the “environmental justice” (EJ) order, is intended to see that no person or group of people should shoulder a disproportionate share of the negative environmental impacts resulting from the execution of this country's domestic and foreign policy programs. Issuing a permit under the TN Federal Program is a federal action subject to the requirements of an EJ review. In preparing the EJ review in this document, each alternative was considered as to the potential impacts of the alternative on identified EJ populations. To the extent that low-income populations are prevalent in the coalfields of Appalachia, the impacts of a proposed surface coal mining operation would generally be felt disproportionately by these environmental justice populations. The most notable impacts to be felt by coalfield residents are the operational disturbances, particularly blasting. For example, blasting can be particularly problematic as low-income persons may be considered more likely to live in non-traditional housing and may utilize poorly constructed water wells as their drinking water source. Such structures may be more vulnerable to damage by blasting vibrations lower than levels that would affect structures built to modern standards (USDOJ/OSMRE, 2002a). However, SMCRA blasting regulations provide for modifying blasting performance standards to account for these circumstances.

Although mining in Appalachia may be more likely to affect a low-income population as these populations typically make up a greater percentage of the population than is generally found outside Appalachia, it should be noted that the decision to mine coal is based on other factors such as the geologic location of mineable coal deposits. Thus, the ability to mine in a particular location is an economic one and there is no reason to believe the presence or absence of an environmental justice or any other segment of the population affects the decision to mine.

OSMRE has, during the permit application review process and development of this NEPA document, focused attention on human health and environmental conditions in the communities that may be affected by the proposed mining activities. The public participation process associated with this proposed application has been inclusive, as required by the EJ executive order. Some residents in the communities located near the proposed mine site may feel that efforts to make them aware of a proposed mine are insufficient; that they are not provided adequate opportunity to participate in the permit process; or that if aggrieved by a mining operation, the complaint process is too challenging and intimidating. However, SMCRA regulations have established numerous opportunities to make the public aware of proposed mining and potential impacts to human health and the environment and to solicit input from interested parties. For example, notices are mailed to local officials, agencies, and utilities when a permit application is received. The permit application is available for review by the public at a place accessible to the public, in this case Claiborne County courthouse and OSMRE's Knoxville Field Office. SMCRA requires ads in the local newspaper(s) weekly for four consecutive weeks advising the public of the proposed project, where and when the application is available for review, and where to send comments and/or request a public hearing on the proposed permit. Comments were received from the public during the comment period and a public hearing was requested. The public hearing was held on November 29, 2012. Additionally, a joint public notice from TDEC and OSMRE was issued on November 9, 2016 for the proposed issuance of NPDES/OSMRE permits for this project. The hearing occurred at the TDEC office in Knoxville on Dec 20, 2016. Comments continued to be accepted until Dec 28, 2016.

Also, an ad is placed in the local newspaper again before any blasting is to occur. Blasting notifications are mailed to everyone living within ½ mile of a mine site where blasting is proposed. Furthermore, if a NEPA document for a federal action is required, as is the case with this proposed action, the public is advised of the preparation and availability of the document in accordance with established NEPA regulations. The above described efforts to inform the public and provide opportunities for input into the permit review process is in addition to a separate but similar public participation process undertaken by the State of Tennessee under Section 402 of the Clean Water Act (NPDES). OSMRE believes these notifications are more than adequate to notify the public of proposed mining, advise the public of potential impacts, solicit input from

those potentially affected, and comply with the both the requirements and the spirit of the EJ executive order.

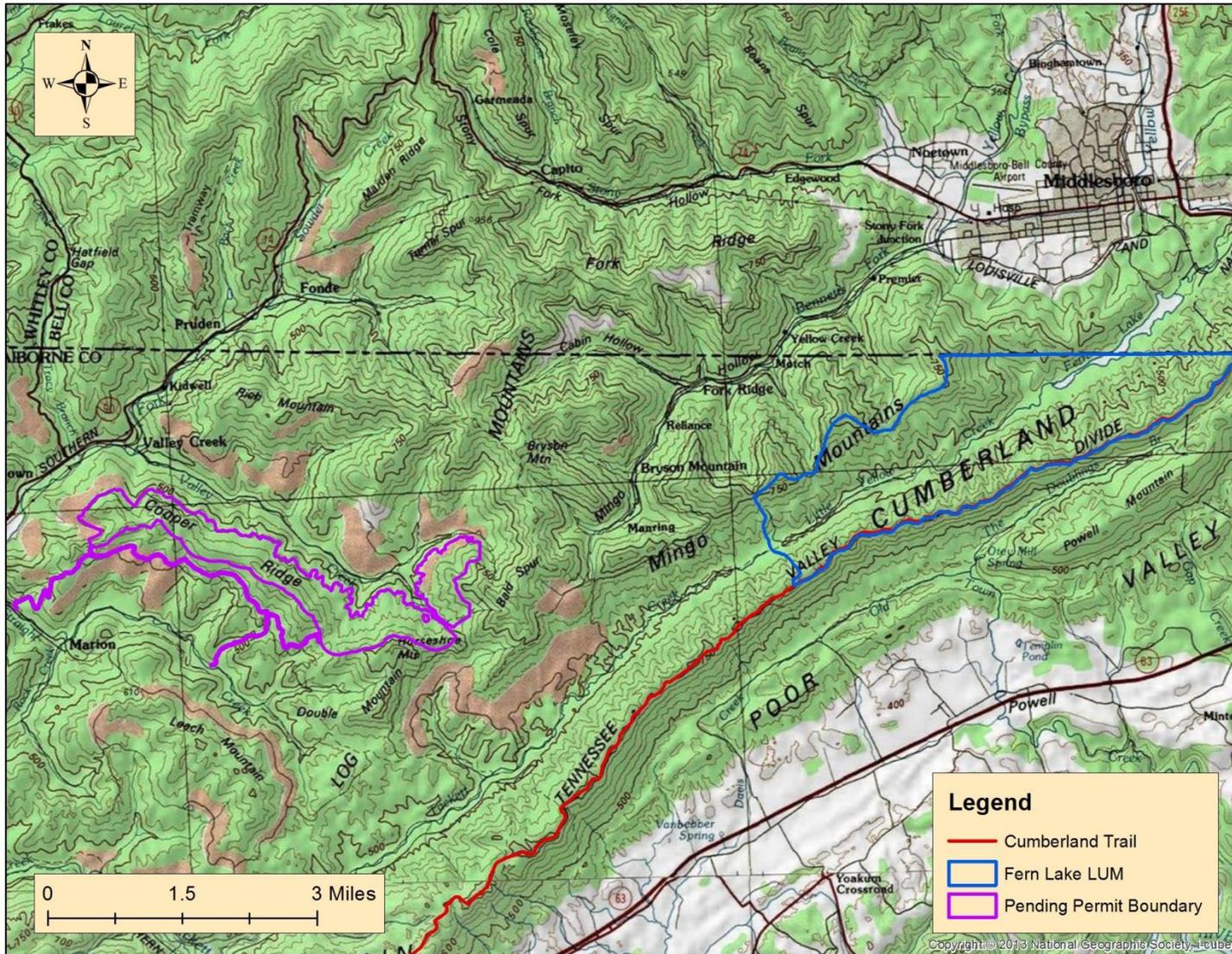
Although no statutory basis exists in SMCRA to base permitting decisions (i.e., approvals or denials) on EJ issues, proposed issuance of a federal permit requires the action agency to comply with the goals of the EJ executive order. Under the executive order, an agency must: (1) focus federal agency attention on human health and environmental conditions in EJ communities, (2) foster non-discrimination in federal programs and actions that substantially affect these populations/ communities, and (3) give the EJ populations/communities greater participation opportunities and greater access to public information on matters of public health and the environment. Under NEPA, if disproportionate impacts on minority or low-income populations are identified, a proposed action is not precluded from going forward, nor does it compel a conclusion that the action is environmentally unsatisfactory. Rather, identification of such an effect should heighten agency attention to alternatives, mitigation measures, monitoring needs, and preferences expressed by the affected communities or populations (CEQ, 1997).

3.14 VISUAL RESOURCES

Although not currently constructed in this area of Claiborne County, the proposed location of the Cumberland Trail State Park (CTSP) is along the ridgeline of Cumberland Mountain approximately 2.2 miles south southeast of the proposed mine site. Cumberland Gap National Historical Park (CGNHP) is approximately 3.25 miles east of the proposed mine site. The proposed mining is not in the watershed of CGNHP. The proposed mining is also not within the viewshed of CGNHP as existing topographical features preclude viewing from within Park boundaries. No other public parks or recreation areas are located in the vicinity of this proposed mine.

In September 1996, OSMRE designated an area of approximately 5.9 square miles, located on the west side of CGNHP in a section of the park that was just recently acquired, as an area that is unsuitable for mining. This unsuitable area is located approximately 3.25 miles east of the proposed mine site. The proposed mine site is not in the viewshed or watershed of the area designated as unsuitable for mining (figure 3.14).

Figure 3.14 Project Area in Relation to Cumberland Gap National Historical Park



The scenic qualities of the area around the proposed mine site have been degraded over the years. Past coal mining operations, most of which occurred over the last 40 – 50 years, have impacted visual aesthetic qualities in the general area. Approximately 75 percent of the proposed disturbed area has been affected by previous mining activities. Although little or no reclamation occurred on areas that were mined in the 50's, 60's, and early 70's, these areas have through natural succession, largely reverted to a vegetated condition. Logging, often heavy, has occurred periodically over the years. Oil and gas exploration and their associated disturbances are widely dispersed in this area. Old logging, exploration, and mining roadbeds crisscross the ridges. These previous disturbances all serve to adversely impact the scenic qualities of this area.

During the life-of-mine, portions of the proposed mine site proper and associated Haul Road No. 1 are likely to have adverse visual impacts on the public, particularly in the winter months when the foliage is largely off the trees. The proposed permit area will not be visible from CGNHP. While existing vegetation, and to a lesser extent topography, would limit to some extent the visual impact, the users of State Highway 90 and Rock Creek Ridge Road and a number of the residences in the Clairfield community will be able to see the mine site from the public roads or the nearby homes. The mine site proper and associated haul roads will also be visible to the occasional person who may be pursuing recreational interests (e.g. hunting, 4-wheeling, etc.) in this area. As reclamation is completed and vegetation established, impacts to scenery would diminish markedly. As the trees that are planted or would otherwise naturally invade the reclaimed site (e.g. yellow poplar, maples, etc.) begin to close canopy and develop a more natural deciduous forest cover, scenic values in this area will more closely approximate those that existed prior to any mining. The haul roads proposed to be used in association with this permit are existing and will be retained as permanent features in the postmining environment and as such, visual impacts associated with the haul roads would be permanent. In addition, areas that were previously mined and not reclaimed or were left inadequately reclaimed (AML) will be reclaimed as part of this application. An estimated 180 acres of AML reclamation will occur with this proposed mining operation.

The applicant has indicated their intent to run two shifts per day (which will continue work after daylight hours) at this proposed site. As such, the lighting required for operations at night would have a marginal but incremental impact on visual resources by contributing to an increasing brightness of the night sky. As the night sky brightens, contrast is reduced and astronomical bodies become harder to see. This impact would be most prevalent during the winter months when daylight is shortest and least noticeable in the summer when the period of daylight is longest. Due to the distance between residences in this area and the mine site proper as well as the topographic features and vegetation between the homes and the site, it is unlikely that lighting required for operations at night would have any nuisance-type impact on these residences.

3.15 RECREATION

The proposed permit is on private land and not available for public use or recreation.

3.16 PALEONTOLOGY

The proposed permit area occurs in East Tennessee and falls into the Paleozoic time period. During the Early Carboniferous (Mississippian), East Tennessee was covered by a warm tropical sea that supported an abundance of marine life. The limestones produced from the sediments that accumulated on the seafloor are rich in fossils of bryozoans, brachiopods, and crinoids (sea lilies). By the Late Carboniferous (Pennsylvanian), mountain building to the east (the Alleghenian Orogeny) produced highlands that shed vast quantities of clastic sediment westward into the sea, forming vast deltas. Coastal swamps formed over these deltas and tall scale trees (lycophytes), horsetail rushes, and other plants grew in abundance. Plant remains in these swampy lowlands eventually produced coal seams that have been economically important in the state's history (paleoport 2017).

3.17 SOLID OR HAZARDOUS WASTE

All spoil generated by the mining operation will be utilized to reclaim the mine site. No disposal site is proposed to be constructed.

3.18 NOISE

In areas removed from on-going mining, oil/gas, or logging operations, the auditory (sound) aesthetic qualities of this area are generally expected to be quite good. Because of the rural nature of this area, background or ambient noise levels are expected to be low. In a noise study of a similar rural area in the southern Cumberland Plateau area of Tennessee, ambient noise levels were estimated in the 35-40 decibel (dB) range (USDOI / OSMRE, 1986). Ambient noise levels at the scattered residences and churches in the nearby Clairfield and Eagan communities are likely to be somewhat higher due to traffic noise from nearby State Highway 90. The primary sources of impacts to the existing auditory environment in the area of the proposed mine site are likely to be those sounds emanating from the occasional use of the roads and any on-going mining, oil/gas, and logging activities.

3.19 SOILS

There are largely two soil series present within those portions of the proposed permit area subject to disturbance. The soils are identified as Muskingham stony fine sandy loam, and Udorthents. Udorthents soils or mine spoil occur on those areas that have been previously mined, the

majority of the area proposed to be disturbed, while the Muskingham soils are present on the remaining area to be disturbed.

The majority of the area to be disturbed by mining has been previously disturbed by pre- and post SMCRA surface mining. It is unlikely that the pre-SMCRA surface mining operations salvaged and redistributed the topsoil material. The amount of topsoil material salvaged and redistributed by the post-SMCRA surface mining operation is unknown.

3.20 PRIME FARMLANDS

None of the identified soil series are considered to be prime farmlands. District Conservationist with the Claiborne County Soil Conservation District was sent a letter on May 25, 2012 regarding prime farmlands. A response to OSMRE has not been received.

3.21 HEALTH AND PUBLIC SAFETY

3.21.1 Public Safety

This EA analyzes impacts related to potential public safety issues that may be affected by the proposed permit. Potential public safety issues evaluated related to (a) blasting, (b) use of the public road system by mining-related equipment, (c) subsidence, (d) flooding, and (e) public access. Blasting is addressed in this section only as it relates to potential impacts to nearby structures/facilities and risk to public safety related to flyrock.

3.21.2 Public Access

The applicant has provided a blasting plan that includes protective measures such as advising nearby residents and the public of the proposed blasting schedule, limiting access to the site during blasting events, and providing audible warnings of pending blasts. They have also indicated their intent to use a combination of warning signs, locked gates, and night watchmen to further minimize risk to the public during those time periods when the mine is not active (e.g. at night, half day Saturdays, Sundays, and holidays).

3.21.3 Blasting Impacts

Because of the proximity of the proposed mining operations and public use areas, blasting associated with underground coal mining operations can impact homes and public use areas. Blasting activities are a particular concern in that they can produce particulate matter (dust), fumes, flyrock, ground vibrations, and air pressure waves (airblast). This section of the EA focuses only on flyrock, ground vibrations, and air pressure waves produced by blasting at the proposed Kopper Glo Mining, LLC mine site.

Over the years, numerous studies have been conducted in evaluating the impacts associated with blasting. These studies largely evaluated the effects that blasting may have on traditional structures and wells. These studies were used in the development of OSMRE regulations and establishing thresholds for airblast and ground vibrations that would prevent injuries to persons or damage to public or private properties outside the permit area.

In 2002, OSMRE completed studies related to this issue. Each of the studies has been incorporated into a programmatic environmental impact statement developed by OSMRE and four other agencies on mountaintop mining and valley fills. One of the studies OSMRE recently completed was on structures that are often identified near proposed mine sites and either: 1) do not fall into the "typical" category; or, 2) may not have been included in the body of research data on which the SMCRA regulations were founded. The study, entitled "Comparative Study of Structure Response to Coal Mine Blasting – Non-Traditional Structures" was designed to provide information on the impact of blasting on such structures. Non-traditional structures may include pre-fabricated houses, trailers, log homes, sub-code homes and adobe structures. This study, conducted near eleven mine sites in nine states, measured the response characteristics of these structures to determine if the current rules provide for their protection, or if modified vibration limits were prudent. As in earlier studies of similar structures, this study concluded that certain types of non-traditional structures (e.g., those constructed of earth, masonry, or two story "camp" homes), responded more strongly than traditional frame or masonry structures to blasting vibrations and airblast. When these structures are present near coal mine blasting, lower site-specific limits may be a prudent action for the regulatory authority to take. This provision is currently an option for the regulatory authority that is provided within the existing regulatory program. This study provides the basis for site-specific investigations on non-traditional structures and should result in improved levels of protection for these structures (USDOJ / OSMRE, 2002a).

Previous scientific research has generally not supported a connection between blasting and permanent adverse impacts to domestic water supplies (wells). The recent OSMRE study entitled "Comparative Study of Domestic Water Well Integrity to Coal Mine Blasting" was designed to determine if the available information on wells and impacts from blasting remained valid. This study was conducted in southern West Virginia, eastern Kentucky, and southwestern Virginia. The study concluded that, similar to earlier studies on wells and blasting, few changes could be directly attributed to a blast event (e.g. no major differences in the observed water quality and well yield data) (USDOJ/OSMRE, 2002b).

Blasting studies conducted over the years as well as the recent blasting studies completed by OSMRE reveal that existing regulations provide appropriate controls for preventing damage to structures, including wells. The blasting regulations provide a means to adjust limits in

circumstances where lower damage thresholds are warranted. As such, the existing regulatory controls provide adequate levels of protection.

3.21.4 Use of Public Roads

The nature of coal mining activities in Tennessee dictates that, with few exceptions, once coal is extracted from the ground, it moves to market by truck via both private and public roads. In the case of the proposed Kopper Glo Mining, LLC mining operation, all coal will be transported from the site by truck to the nearby Marion Tipple facility. Coal haulage will not occur on Sunday as the company normally does not work on Sunday. This coal haulage will likely be the dominant factor influencing both road maintenance and the safe use of public roads. The occasional transport of mine supplies to the site and the daily ingress and egress of the approximately 40 workers who will be employed at the site are much less likely to adversely impact public road use. All vehicular traffic will enter and leave the site via the existing haul roads. Coal trucks will likely enter and leave the public road (an unpaved county road) at one of three locations. At the points where coal trucks will enter and exit the unpaved county road from the haul road, adequate lines of sight are present such that given legal and safe speed limits on these roads, there should be ample opportunity for coal trucks to enter and exit the county road without placing public safety in jeopardy.

3.21.5 Subsidence

The applicant proposes to conduct auger / highwall mining as a part of the proposed mining operation. The applicant indicates that there are no protected structures, renewable resource lands, or drinking/domestic water sources present in the area above the proposed auger / highwall mining activity. As such, subsidence would have no effect on these type resources. The applicant has limited extraction rates associated with this type mining to approximately 54% – 68% thus minimizing the likelihood that subsidence will occur. In the unlikely event that subsidence occurs in the area above the highwall, the occasional hunter or ATV rider would be the most likely person exposed to this impact. However, if such an event did occur, it is even less likely that it would occur in such a catastrophic manner as to place the health and safety of the public (e.g. a hunter or ATV rider) at risk. Subsidence effects that would be visible on the surface of the land would likely include cracks and depressions that would not be significantly different from the type features that exist in the natural environment.

3.21.6 Flooding

An evaluation of the flooding potential resulting from both the individual proposed mine site and for all mining within the cumulative impact area (CIA) watershed was developed as part of the evaluation of the proposed permit. These predicted flood elevations were compared to the existing floor elevations of the school, church, and the residential structure and determined that

the increase in the water levels were minor and would not exceed any elevations that would cause additional flooding of those structures. Therefore, the expected increase in the depth of flow would not result in any material damage that would be attributable to surface coal mining activities within the watershed (Appendix E). It should be noted that buildings within the three critical areas analyzed areas (include residence # 25, the Clairfield Elementary School, and the Baptist Church) are located within the Flood Zone as identified on the National Flood Insurance Program Rate Map 47025C0035D, dated 9/25/2009.

CHAPTER 4: ENVIRONMENTAL CONSEQUENCES (DIRECT AND INDIRECT IMPACTS)

4.1 INTRODUCTION

4.1.1 Summary Comparison of Direct and Indirect Environmental Impacts

Approval and implementation of Kopper Glo Mining, LLC's operation and reclamation plan will result in temporary changes to some existing environmental resources such as: (1) land use, (2) terrestrial and aquatic species/habitats, (3) air quality, (4) soils, (5) postmining vegetative cover, (6) topography, and (7) aesthetics. The duration and the intensity of the temporary impacts to the environmental resources identified above are predicted to last from at least 9.2 years (the life-of-mine) to the many years required for soils to redevelop or for the trees to reach maturity or succession to occur. The intensity is predicted to be initially adverse diminishing to minor over time.

In addition to these temporary changes, some permanent changes will occur during the course of the mining and reclamation operation such as: (1) alteration of the geologic strata, (2) increased infiltration rates through the backfilled material, and (3) permanent retention of roads and the sediment basins as converted wetlands. Proper implementation of the proposed operation and reclamation plan including the hydrologic reclamation plan (HRP) is predicted to prevent or minimize the adverse effects that may occur from the permanent changes.

Disapproval of the operation and reclamation plan and denial of the permit will prevent the temporary and permanent changes and associated environmental impacts from occurring. Some examples of this are as follows. In the short term, disapproval would prevent any during-mining increase in sedimentation from occurring. Disapproval would preclude the occurrence of increased concentrations of SMCRA pollutants within the mined watersheds as predicted in the CHIA's. Disapproval would minimize disruption to existing vegetation and wildlife. While in the short term (i.e. during mining), scenic values may be impacted, in the long term (i.e. postmining), restoration of topographic conditions and vegetation similar to that which existed prior to any mining, will minimize aesthetic impacts. If disapproved, this restoration of topographic and vegetative conditions that existed prior to any mining would not occur and the AML problems that currently exist on this site (e.g. highwall) would remain. Disapproval would also result in the loss of employment opportunities associated with this mine site as well as the loss of revenue to the local economy and the State and county tax base.

Table 4.1.1 Summary of Chapter 4 Environmental Impacts by Alternative

| <u>Resource</u> | <u>Alternative A</u> | <u>Alternative B</u> |
|----------------------------------|--|---|
| Topography | After reclamation, impacts to topography would be negligible, because upon completion of the proposed mining and reclamation activities, topography within the proposed permit area should largely be restored to the approximate conditions that existed prior to any mining in this area. Current conditions will improve with the reclamation of 5.11 miles of abandoned highwalls are proposed. | No mining would occur on the proposed mine area and 5.11 miles of abandoned highwalls ranging in 20-40 feet high would be left unreclaimed. |
| Air and Climate Resources | OSMRE has determined that it is unlikely that dust and fumes associated with blasting operations at this proposed site will cause any health or nuisance impacts to nearby residents or the occasional user of nearby public roads. When it comes to GHG emissions, the contribution of any individual mine typically found in the Tennessee coal fields is unlikely to make any significant contribution to the global warming issue. | No mining would occur on the proposed mine area and there would be no impacts to air and climate resources from the proposed mine area. |
| Direct GHG emissions | Negligible long-term impact on Tennessee (0.40%) and U.S. (0.023%) total annual GHG emissions throughout all phases of the project. | Negligible long-term impact on Tennessee (0.1%) and U.S. (0.0173%) total annual GHG emissions throughout all phases of the project. |
| Geology | Negligible to minor, long-term impact on the geological column. | Same as Alternative A. |

| | | |
|-----------------------------------|--|---|
| <p>Water Resources</p> | <p>On the basis that the proposed mining activity will comply with approved permit plans and all performance standards, OSMRE has determined that the proposed operation has been designed to prevent material damage to the hydrologic balance outside the permit area. The water quality of the receiving streams should remain within acceptable limits for their particular stream-use classification. OSMRE has prepared a cumulative hydrologic impact assessment (CHIA) for the subwatershed. The CHIA was developed for this proposed mining operation to consider the combined hydrologic impacts on both the ground water and surface water resources resulting from existing and anticipated mining operations.</p> | <p>No mining would occur in the proposed permit area and there would be no effects to downstream flows or quality. Similarly there would be no impacts to downstream water users, aquifers, or groundwater quality.</p> |
| <p>Surface water</p> | <p>Surface water monitoring of the stream, and of the settling basins discharging to the stream, would be conducted in accordance with SMCRA and the Clean Water Act National Pollutant Discharge Elimination System (NPDES) permit requirements to ensure that water quality impacts to receiving streams are minimized. The SMCRA and NPDES permits will also require periodic monitoring of the streams' biological conditions.</p> | <p>No mining would occur in the proposed permit area and there would be no effects to downstream flows or quality. Similarly there would be no impacts to downstream water users, aquifers, or groundwater quality.</p> |
| <p>Groundwater impacts</p> | <p>The wells near the project area are approximately 0.75 miles from the proposed mining operation and are stratigraphically separated from the proposed mine site by 300 feet of interbedded sandstones and shales and as such are believed to be hydrologically isolated from the</p> | <p>No mining would occur in the proposed permit area and there would be no effects to downstream flows or quality. Similarly there would be no impacts to downstream water users, aquifers, or groundwater quality.</p> |

| | | |
|--------------------------|---|--|
| | <p>proposed mine area, and were apparently not impacted by previous surface mining activities in this area. OSMRE concludes that no mining-related impacts to the Clear Fork Utility District ground water wells are anticipated because of the proposed mining operation. A spring was identified and is currently used as a drinking water source for one nearby resident; the well may be impacted by the proposed surface mining activities. If the quality or quantity of this spring is affected such that it is no longer a viable drinking water source, the applicant has proposed a plan to provide the nearby resident with an alternative water source. If such impact occurs, the applicant will drill a well for the owner of the residence and provide all necessary materials to ensure that the well provides a useable supply of water.</p> | |
| <p>Vegetation</p> | <p>The proposed mining would result in the surface coal mining disturbance of vegetation on approximately 385.4 acres of the 472.5 acres proposed for surface coal mining disturbance. The project is not expected to result in significant cumulative impacts to terrestrial animal communities, increase populations of exotic or invasive terrestrial animals, or result in significant adverse impacts to migratory birds in the region. For some years after mining, the non-invasive ground cover species will provide the principal component of the postmining land use. 20-30 years post-reclamation, herbaceous habitat begins to give way to the more closed, forest cover habitats.</p> | <p>No mining would occur in the proposed permit area and there would be no loss of forested area. Similarly, there would be no impacts to loss of wildlife habitat or streams.</p> |

| | | |
|------------------------------------|--|--|
| Wetlands and Riparian Zones | An evaluation of the flooding potential concluded that there will be little or no increase in the flooding potential in this area as a result of the proposed surface mining operation. | No mining would occur in the proposed permit area and there would be no impacts to existing wetlands. |
| Fish and Wildlife Resources | These mining activities would result in some direct mortality of slow-moving animals, temporary loss of habitat (food and shelter) in the areas of proposed disturbance, and further displacement of more mobile species into adjacent habitats. These areas were quickly repopulated by species that favor early successional habitats. Species that favor successional habitats and forest habitats would later move into the reclaimed areas as the vegetation required to establish these habitats becomes established. The proposed mining activity would likely result in temporary impacts in the headwater area of portions of Rock Creek, Straight Creek, Valley Creek, Hurricane Creek, and Clear Fork and is unlikely to jeopardize fishery resources in the Clear Fork drainage system. These effects would be minimized by measures to be implemented during active mining and during reclamation of the site due to increased levels of TSS. | No mining would occur in the proposed permit area and there would be no impacts to existing fishery and wildlife resources. The current land use would not change and the TSS would not increase due to mining related activity. |
| Special Status Species | After having considered the measures incorporated in the proposed permit application to prevent, minimize, or mitigate impacts to protected species and the impacts to the hydrologic regime predicted in the permit application and OSMRE's CHIA for this proposed permit, OSMRE concludes that the proposed surface coal mining operation is predicted to provide adequate protection for | No mining would occur in the proposed permit area and the current land use would not change. There would be no new impacts to threatened and endangered species. |

| | | |
|---|--|---|
| | <p>federally listed species. OSMRE has concluded that the operation, as proposed, should not affect the continued existence of any State or Federally listed threatened/endangered species or species of concern, including Indiana bat, northern long-eared bat, gray bat, and blackside dace.</p> | |
| <p>Cultural and Historic Resources</p> | <p>The applicant proposes to maintain a 100 foot buffer between proposed mining activities and the cemeteries and to restore vehicle access to the cemetery for which the proposed mining would remove the existing jeep trail to the cemetery. OSMRE has determined that the protective measures proposed by the applicant should be sufficient to ensure the integrity of the two cemeteries. The response received January 19, 2010, from the Tennessee State Historic Preservation Officer indicated that no historic or archaeological resources were known to exist in this area. During the course of the mining operation, if previously unidentified cultural resources are discovered, the permittee shall ensure that the site(s) is not disturbed and shall notify the Regulatory Authority (OSMRE).</p> | <p>No mining would occur in the proposed permit area and there would be no impacts to potential existing cultural and historical resources.</p> |
| <p>Socioeconomics</p> | <p>The proposed mining activity will provide jobs and tax revenues for the local and state governments. The applicant has indicated that approximately 40 people will have direct employment with the coal company at this mine during the life of this proposed project. Goods and services purchased in the area by the applicant and employees of the applicant will provide direct support to the local economy, and through</p> | <p>No mining would occur in the proposed permit area and there would be impacts to existing socioeconomics. Local and state governments depend on the revenue from coal mining. Coal mining provides jobs and income for the local community.</p> |

| | | |
|--------------------------------|--|--|
| | <p>sales tax revenue, will provide indirect support to the local and state governments. The federal government will of course collect personal and business income tax revenue. The applicant must also pay a fee to the federal government of \$0.28 per ton for each ton of coal removed to help reclaim pre-SMCRA abandoned mine sites. Local and state governments also receive \$1.00 per ton in tax revenue for each ton of coal removed.</p> | |
| <p>Visual Resources</p> | <p>While existing vegetation, and to a lesser extent topography, would limit to some extent the visual impact, the users of State Highway 90 and Rock Creek Ridge Road and a number of the residences in the Clairfield community will be able to see the mine site from the public roads or the nearby homes. The mine site proper and associated haul roads will also be visible to the occasional person who may be pursuing recreational interests (e.g. hunting, 4-wheeling, etc.) in this area. As reclamation is completed and vegetation established, impacts to scenery would diminish markedly. An estimated 180 acres of AML reclamation will occur with this proposed mining operation. Due to the distance between residences in this area and the mine site proper as well as the topographic features and vegetation between the homes and the site, it is unlikely that lighting required for operations at night would have any nuisance-type impact on these residences.</p> | <p>No mining would occur in the proposed permit area and there would be no impacts to existing visual resources. However, the pre-existing highwalls will not be reclaimed and restored to pre-mining characteristics.</p> |

| | | |
|--|---|---|
| <p>Solid or Hazardous Waste</p> | <p>The coal to be mined and temporarily stockpiled on site is potentially acid forming material; runoff from the stockpiles will be directed to the sediment basins. Lime will be used to bring pH to net acid base before dewatering pits. Fuel will be stored in metal containers to prevent leachates or spills from entering the ground and surface water systems.</p> | <p>No mining would occur on the proposed permit area and there would be no impacts from solid or hazardous waste.</p> |
| <p>Noise</p> | <p>The primary mining-related sources that would contribute to noise impacts are blasting, equipment operation, and coal transportation. OSMRE funded a study of noise related to coal mining which determined humans could be affected by exceeding noise level generally accepted to represent an “annoyance” threshold. Any noise increases associated with the proposed mining operation would essentially end upon completion of all mining and reclamation activities, a period of approximately 9.2 years.</p> | <p>No mining would occur in the proposed permit area and there would be no impacts from noise.</p> |
| <p>Soils</p> | <p>The proposed mining will disturb soils present within the permit area. Previous mining that occurred many years ago has altered the majority of the 472.5 acres proposed for surface disturbance. The presence of these potentially acid/toxic zones within the geologic strata to be disturbed by the proposed mining indicates that there is a potential for development of AMD. This necessitated that Kopper Glo Mining, LLC design a site-specific toxic material handling plan. The plan contains these steps: (1) minimize disturbances to the hydrologic balance within the permit and adjacent areas, (2) prevent</p> | <p>No mining would occur in the proposed permit area and there would be no impact to soil resources.</p> |

| | | |
|--|---|--|
| | material damage outside the permit area, (3) meet applicable Federal and State water quality laws and regulations, and (4) protect the rights of present water users. | |
|--|---|--|

4.2 TOPOGRAPHY

4.2.1 Alternative A (Proposed Action)

As indicated in the description found in section 3.2 above, much of the proposed permit area has been previously contour mined leaving scattered areas of exposed highwall varying from approximately 20 to 40 feet in height. The topography in the proposed permit area will be further altered during removal of overburden and storage of spoil materials. However, spoil material will be regraded during reclamation of the site to reestablish topographic conditions that approximate those which existed prior to any mining disturbances. In addition to eliminating all highwalls created by this proposed mining, the highwalls existing within the proposed permit area as a result of previous contour mining will also be reclaimed to restore topographic contours similar to those that existed prior to any mining. Upon completion of the proposed mining and reclamation activities, topography within the proposed permit area should largely be restored to the approximate conditions that existed prior to any mining in this area.

4.2.2 Alternative B (Disapproval)

Under Alternative B, the 5.11 miles of 20 to 40 feet in height preexisting highwalls will not be reclaimed.

4.3 AIR AND CLIMATE RESOURCES

4.3.1 Alternative A (Proposed Action)

Fugitive dust usually refers to the dust put into the atmosphere by the wind blowing over bare soil, plowed fields, dirt roads, desert, or sandy areas with little or no vegetation. Reentrained dust is that which is put into the air due to vehicles driving over dirt roads and dusty areas. The emission rates of fugitive dusts are highly variable and dependent on the prevailing atmospheric conditions, including wind speed and direction. Potential health risks of airborne dust and fumes from blasting and other mining operations generally result from inhalation of particulate matter, fugitive dust, and reentrained dust emanating from the mining operations and hauling.

Dust and Fumes from Blasting

Impacts to air quality (airborne dust and fumes) from blasting and other mining operations are generally localized within the immediate area of the mining site. This conclusion is supported by a study, completed by the Department of Mining Engineering at West Virginia University, which included the study of dust and fume emissions from 10 blasting events at 3 mines (English 2001). Results of this initial study indicate that detectable concentrations of respirable dust, total dust, nitrogen dioxide, nitric oxide, carbon monoxide, and ammonia were found in ambient air at locations both in close proximity to the mining operation and at a distance greater than 1,000 feet from the blasting operations. However, the study further concluded that a significant reduction in detected concentrations of measured contaminants was found when the distance from the blasting operations was increased. Investigators found no indication that there are any significant health risks due to exposure to dust and fumes when no personnel are in close proximity to the blast zone. Conclusions of this investigation indicate that fugitive dust and fume emissions presented no potential health problem for the following reasons:

- No event produced any “harmful” levels of any duration at distances exceeding 1,000 feet, except one measurement of 3.6 ppm NO₂ (nitrogen dioxide) at 1,251 feet; and
- The NO₂ measurement at 1,251 feet and all others were of short duration. (English, 2001)

The closest residence or public road is located along Haul Road No. 1 approximately 1,250 feet from any potential mining-related blasting activity. Given the findings of the above referenced study, the distances between the mine site and those potentially impacted, the topographic relief and vegetation present between the proposed mine site and the nearby residences, and the higher humidity levels and lower wind speeds typical of East Tennessee, OSMRE has determined that it is unlikely that dust and fumes associated with blasting operations at this proposed site will cause any health or nuisance impacts to nearby residents or the occasional user of nearby public roads.

CGNHP is located approximately 7.8 miles east of the proposed mine site proper. For the same reasons identified above relevant to nearby residences, OSMRE has concluded that users of CGNHP are unlikely to be adversely impacted by dust or fumes emanating from the mine site. As previously noted, legal use of the property for recreational activities such as hunting, fishing, and ATV use is limited those who lease hunting rights from the landowner. The applicant has provided a blasting plan that includes protective measures such as limiting access to the site and providing audible warnings of pending blasts. They have also indicated their intent to use a combination of warning signs, locked gates, and night watchmen to further minimize risk to the public during those time periods when the mine is not active (e.g. Sundays and holidays). OSMRE has determined that potential risk to users of this area resulting from dust and fumes

generated by the actual mining operation is minimized to the point that it is unlikely that blasting or other mining operations at this proposed site will cause any public health or safety impacts.

Reentrained Dust

Another primary source of impacts to air quality is reentrained dust. Reentrained dust is that which is put into the air due to vehicles driving over dirt roads and dusty areas. As total suspended particulate (TSP) levels are typically 85 percent less on paved roads than TSP levels associated with the use of unpaved roads (EPA, 1983), this discussion will focus on the use of unpaved roads. Given the proximity of the proposed mine site and coal haulage routes to populated or public use areas, the only location where reentrained dust could reasonably be expected to impact the public or the environment is at the residential area located along the currently existing Haul Road No. 1.

To determine potential air quality impacts resulting from reentrained dust, OSMRE has used a 1984 study conducted by PEDCO Environmental, Inc. (PEDCO, 1984). The PEDCO study used TSP as a standard in the analysis. The study projected that TSP increases beyond 650 feet from the source of reentrained dust (i.e. the unpaved road) would be within the primary air quality standards set for the protection of public health. The study further concluded that at a distance of 0.62 miles (3,275 feet), the TSP criterion was met for both primary and secondary limits (secondary limits are established to protect public welfare including protection against decreased visibility, impacts to vegetation, etc.).

Reentrained dust associated with that portion of the proposed permit area that includes unpaved road is likely to impact the occasional user of this area. Based on production estimates and employment estimates provided by the applicant, in a 16 hour work day (i.e. 2 eight hour shifts), there will be approximately 40 employee vehicle round trips per day and approximately 80 coal truck round trips per day. Thus anyone who happens to be using the area in the vicinity of the unpaved road will be adversely impacted by fugitive dust. However, the duration of the user's exposure will be quite short. As the exposure of a user would be infrequent and of very short duration, it is unlikely adverse impacts to the public's health would occur. Although public health is unlikely to be affected, secondary / nuisance type impacts would occur.

As per the above referenced PEDCO study, there are an estimated 6 residences and 2 churches located within the potential primary impact zone and an additional 40 – 50 residences located in the secondary air quality impact zone. As such, it is likely that reentrained dust from the proposed permit area, principally Haul Road No. 1, will adversely impact those living at these locations. These impacts would not occur during periods of wet weather or on Sundays as the applicant has indicated that the company will not work on Sundays. These exceedances of primary and secondary air quality standards assume no dust reduction measures will be utilized by the applicant. However, all unpaved roads proposed for use in this proposed permit

application are subject to SMCRA regulatory authority and as such, the applicant was required to prepare and implement an air pollution control plan. This plan includes measures such as periodic watering of the haul road. This will reduce the levels of potential impact by approximately 50 percent. This conclusion is based on the fact that, as reported in Table 4-7 of the Tennessee Federal Program EIS (OSMRE-EIS-18), spraying water on unpaved roads reduces emissions by approximately 50 percent (USDOJ / OSMRE, 1985). These impacts would largely end upon completion of mining and reclamation activities (approximately 9.2 years).

As described in Section F.6 above, the closest non-attainment air quality area is Anderson County. The proposed permit area is a relatively remote, rural area located some 23.5 miles northeast of the Anderson County area. Given the distance from the proposed site to the area of non-attainment, the fugitive dust control measures proposed in the permit application, the climatologic patterns prevalent in this area of the country (i.e. typically lower wind speeds and higher relative humidity), the topographic features that are present in the vicinity of the site, the nature of the pollutants that are created by the type activity proposed, and the results of the above referenced West Virginia University and PEDCO studies, it is unlikely that the proposed mining activities would contribute in any detectable way to the pollutants for which this area is identified as non-attainment.

The closest Class I and Class II Prevention of Significant Deterioration (PSD) areas are 62 miles and 7.8 miles respectively from the proposed permit area. As indicated in the above discussion, at these distances from the proposed mine site, it is unlikely that the proposed mining would have any adverse impact on the air quality of any Class I / II PSD areas.

Coal Mining Emissions

Coal mining related emissions associated with this proposed site represent another possible source of impact to the environment. These emissions would occur because of the use of equipment to extract and transport the coal and because of exposing the coal seam to the human environment. When exposing the coal seam to the environment, gases such as methane that are otherwise essentially bound in the in situ coal seam are released in varying quantities to the human environment.

As for equipment typically used in surface mining to expose and extract the coal from the ground and move the coal to market, this type equipment (e.g. bulldozers, front end loaders, trucks, etc.) is typically powered by internal combustion engines which will produce air polluting emissions including gasses and reentrained dust. Impacts associated with reentrained dust have been previously described. Exhaust emissions from equipment used to expose, load, and transport the coal cannot be avoided. While all internal combustion engine emissions contribute to global warming, such contributions on an individual project basis such as is proposed in this permit application would be globally insignificant. On a local or project level, exposure to vehicle

emissions would potentially impact the occasional user of the public road used by trucks to transport the coal to the nearby Kopper Glo Mining, LLC coal processing and loading facility. The infrequency with which the occasional user of the road would be exposed to vehicle emissions would make it unlikely that such exposure would place public health at risk. However, even though such exposures would be infrequent, nuisance type impacts would be unavoidable when for example a user of the road must follow a coal truck for any prolonged period. The scattered residences located along proposed Haul Road No. 1 are typically from 200 ft. to 600 ft. off the road. Given the limited volume of pollutants found in these type vehicular emissions, at these distances (the average distance being approximately 300 ft. from these roads), it is likely that dispersal of such exhaust emissions into the environment would preclude impacts to public health.

Methane is produced in surface and underground mines when the coal seam is exposed. While surface mining is occurring, the exposure of the coal seam and breaking and loading of the coal on trucks will release gasses such as methane into the environment. As methane is lighter than air, gases being vented from the exposed coal seam would typically be expected to disperse into the atmosphere and pose little or no risk to the health of those working at the mine and no risk to anyone living in the area of this mine site. Once mining ceases, the exposed coal seam is covered with earthen materials (i.e. backfilled), and the site is reclaimed, the venting of such gases into the environment would be significantly reduced. Although gasses, such as methane, given off during surface mining pose no risk to public health in the local community, coal mining is one source of greenhouse gas emissions that are typically associated with global warming. The contribution of any individual mine typically found in the Tennessee coal fields is unlikely to make any significant contribution to the global warming issue.

The state of Tennessee as a whole produced approximately fifty-three (53) million metric tons of CO₂ across all reporting industries. Based on the greenhouse gas calculations and predictions in Appendix C, this mining operation will produce less than 0.1% of the total reported CO₂ production of the state of Tennessee through direct and indirect impacts. This contribution to GHG emissions shall be minimal and controlled, placing no additional immediate threat to the environment.

Coal Transport

Once the coal has been mined at the proposed permit, it will be trucked a few miles away to be processed at the Marion Tipple. After the coal has been processed, it will be distributed based on the coal market and other factors. The Marion Tipple is operated by Kopper Glo Mining, LLC and is classified as an active OSMRE permit. The tipple was issued an operating permit (conditional major) by the State of Tennessee Air Pollution Control Board on October 29, 2015 and will expire on February 1, 2025. The operating permit is included in the Appendix F.

4.3.2 Alternative B (Disapproval)

Under Alternative B, no mining would occur on the proposed mine area. Therefore, there would be no impacts to air and climate resources on the proposed mine area.

4.4 GEOLOGY

4.4.1 Alternative A (Proposed Action)

As per 30 CFR 780.18(b)(6) and 816.59, in order to maximize the use and conservation of the coal resource and minimize the likelihood of re-affecting the land in the future for coal resource recovery, after contour mining at a given location is completed, the coal seam is also proposed to be auger / highwall mined. The proposed auger / highwall mining will penetrate the exposed coal seam horizontally to a depth of approximately 300 to 800 feet. To maximize mine stability and minimize the potential for mine subsidence, extraction rates have been calculated to be approximately 68%. This in combination with the fact that a minimum of 100 feet of in situ geologic strata will be left in place between the coal seam and the ground surface overlying the coal seam should further reduce the likelihood of subsidence adversely affecting the area overlying the proposed auger / highwall mining area. However, in the unlikely event subsidence occurred, this would result in a downward displacement of the shales and sandstones overlying the coal and a subsequent increase in the fracturing normally present in these type materials. This increased fracturing would result in an increase in the rate at which ground water would move downward through these materials and could possibly eliminate any of the perched aquifers that may be present in the overburden materials overlying the coal seams.

4.4.2 Alternative B (Disapproval)

Under Alternative B, no mining would occur on the proposed mine area. Therefore, there would be no impacts to topographical features on the proposed mine area.

4.5 WATER RESOURCES

4.5.1 Alternative A (Proposed Action)

In their permit application, Kopper Glo Mining, LLC has identified and described the probable hydrologic consequences (PHC) of the proposed mining operations. In order to develop the PHC, Kopper Glo Mining, LLC was required to conduct geologic and hydrologic sampling and analyses. This sampling and analysis identified a potential for the formation of acid/toxic mine drainage (AMD). Coal seams are by their very nature typically considered to be a potential source of AMD. As such, the coal seams proper and the coal fines which will be created by the mining process are identified as potential sources of AMD. Also, a zone of geologic strata located from 22 feet to 40 feet above the main Coal Creek seam showed potentially acid forming

material as being present. The presence of these potentially acid/toxic zones within the geologic strata to be disturbed by the proposed mining indicates that there is a potential for development of AMD. This necessitated that Kopper Glo Mining, LLC design a site-specific toxic material handling plan (TMHP). The proposed TMHP is one component of the HRP. The HRP is required to specifically address the local hydrologic conditions and contains steps to be taken during mining and reclamation through bond release to: (1) minimize disturbances to the hydrologic balance within the permit and adjacent areas, (2) prevent material damage outside the permit area, (3) meet applicable Federal and State water quality laws and regulations, and (4) protect the rights of present water users.

During the technical review of the PHC and the proposed TMHP and HRP, OSMRE evaluated the: (1) geochemistry of the materials present in the overburden and immediately beneath the coal seam to be mined, (2) geologic and stratigraphic conditions present at this site, (3) proposed backfilling and grading plan including spoil compaction and reclamation time frames, (4) plans for handling of acid/toxic material, (5) movement and quantity of water in and through the overburden materials, and (6) water quality impacts associated with previous mining in this area to assess the effectiveness of the proposed HRP and determine the resulting water quality of discharges from the affected area into the ground and surface water regimes present in this area.

During the technical review of the proposed permit application, the applicant made changes to the proposed plans to comply with State and Federal rules and regulations and provide a higher level of protection for surface waters determined to be within the jurisdiction of the State of Tennessee. The applicant located the proposed mine site proper in a location so as to minimize disturbances within jurisdictional waters. Culverted stream crossings are present or will be installed at locations along the proposed haul road where identified jurisdictional waters cross the road in order to minimize impact to the streams.

The majority of ground water within the proposed permit and adjacent areas will move down slope along stress-relief fractures. Most potential aquifer units would be located at lower elevations along valley bottoms and foot slope areas where sufficient recharge is available to provide a useable water supply. The occurrence of significant ground water at higher elevations of the permit and adjacent area is remote because of the limited recharge and storage capacity of the stress-relief fracture systems. As indicated in Section F.3 above, no ground water users were identified within the proposed permit area. One ground water source, a spring, was identified and found to be in use within a 0.5 mile radius of the proposed mine site. This spring is located at the 1,280 ft. elevation approximately 100 ft. north of the permit boundary. The spring is approximately 125 ft. in elevation below the Coal Creek coal seam. This spring serves as a source of water for one residence. Municipal (Clear Fork Utility District) water is also available in this area. The utility district obtains its water from wells located in the valley bottom some

0.75 miles north of the proposed mine site. The utility district wellheads are at an approximate elevation some 300 feet below the lowest coal seam elevation proposed to be mined.

Although the potential for acid/toxic drainage to be encountered or produced by the proposed mining activities is present, this potential and the impacts associated with this potential have been minimized in the proposed mining operation plans, TMHP, and HRP. Based on these plans, in combination with the fact that the utility district wells in this area (1) are approximately 0.75 miles from the proposed mining operation and are stratigraphically separated from the proposed mine site by 300 feet of interbedded sandstones and shales and as such are believed to be hydrologically isolated from the proposed mine area, and (2) were apparently not impacted by previous surface mining activities in this area, OSMRE concludes that no mining-related impacts to the utility district ground water wells are anticipated as a result of the proposed mining operation.

The above identified spring that is currently used as a drinking water source for one nearby resident may be impacted by the proposed surface mining activities. If the quality or quantity of this spring is affected such that it is no longer a viable drinking water source, the applicant has proposed a plan to provide the nearby resident with an alternative water source. If such impact occurs, the applicant will drill a well for the owner of the residence and provide all necessary materials to ensure that the well provides a useable supply of water.

The city of Middlesboro, Kentucky utilizes nearby Fern Lake as their primary water intake. Fern Lake proper is located approximately 11.6 miles east northeast of the proposed permit area. After considering the type of impacts to surface waters identified in the PHC and CHIA's, the proximity of the water intake to the proposed mine site, the fact that the proposed mining is not in the watershed of Fern Lake, and the fact that previous surface and underground mining in the vicinity of this site has historically had no reported impact on the Fern lake reservoir, OSMRE has concluded that there will be no change to the water quality of Fern Lake as a result of the proposed mining.

As previously indicated, CGNHP is in the vicinity of the proposed mining operation. Surface run-off from disturbances associated with the proposed mine will not enter into or be visible from this park. As there is a distinct geographic, topographic, and stratigraphic separation between this park and the proposed mine site, there is little likelihood that ground water resources in this park would be impacted by the proposed mining.

A more detailed description of the anticipated impacts to both the surface and ground water regimes in this area is incorporated into the PHC and HRP in the permit application and in OSMRE's CHIA's for the proposed mining (Appendix E).

On the basis that the proposed mining activity will comply with approved permit plans and all performance standards, OSMRE has determined that the proposed operation has been designed to minimize hydrologic impacts inside the permit boundary and prevent material damage to the hydrologic balance outside the permit area. The water quality of the receiving streams should remain within acceptable limits for their particular stream-use classification.

4.5.2 Alternative B (Disapproval)

Under Alternative B, there would be no disruption of the proposed permit areas stream channels, and no effects to downstream flows or quality. Similarly there would be no impacts to downstream water users, aquifers, or groundwater quality.

4.6 VEGETATION

4.6.1 Alternative A (Proposed Action)

The proposed mining would result in the surface coal mining disturbance of vegetation on approximately 385.4 acres of the 472.5 acres proposed for surface coal mining disturbance (Note: an estimated 87.1 acres of haul road disturbance already exists as a result of previous mining, logging, and oil and gas exploration and will be retained as permanent facilities in the postmining environment). The proposed mine site disturbance is vegetated with a combination of more mature forest dominated by oak-hickory and mixed mesophytic forest types while the old mine bench is in various stages of revegetation ranging from herbaceous and shrub communities to pole-sized forest.

The vegetation cleared from the site will either be hauled off as timber and/or firewood, or placed in the bottom of the mined pits away from the final highwall, or at the operators discretion be windrowed along the inside of the orphan spoil berm. Organic material, wood and vegetation generated from clearing and grubbing operation may be buried in the orphan pit adjacent to the existing highwall. Once the material has been cleared and placed in the pit, it will be spread and compacted in a single lift. No woody material will be placed within 50 feet of the final highwall. To compensate for possible settlement of the backfill, the permittee will over backfill the area near the highwall by three vertical feet. This overfilling will be graded to blend in with the natural contour and prevent surface runoff from being impounded. Rock lined drainways shall be constructed down the center of the backfilled hollows to carry surface runoff to the bench drainage ditches. Soil stabilization will be accomplished by mulching the area with fiber mulch at a rate of 1500 pounds per acre. In accordance with the proposed postmining land use, timber and brush will also be left at various locations within the mine area for wildlife nesting areas.

Implementation of the proposed operation and reclamation plan will result in changes to site vegetation. Vegetation within the area of proposed mine disturbance as well as areas where the

sediment ponds and diversion ditches are to be constructed and spoil / topsoil storage is to occur would be removed. During reclamation, disturbed areas will be replanted with a mixture of grasses and legumes to provide a prompt vegetative cover and minimize erosion. Once the grasses have been sown, trees will be planted on the vast majority of the reclaimed mine site to facilitate the establishment of wildlife habitat. When no longer needed for sediment control purposes, all sediment basins will be modified to be retained as wetland areas to provide habitat diversity and facilitate the restoration of a vegetative cover compatible with the proposed postmining land use. Following the completion of reclamation activities and bond release, a period expected to last at least 10 years from initiation of mining activity, any vegetative maintenance on the mine site would revert to the property owner.

Species considered to present a threat to native plant communities would not be used in revegetating the proposed mine. Thus, the proposed action should not result in the introduction of any invasive species.

The existing premining land use and the proposed postmining land use are essentially the same, that being undeveloped (forest) with fish and wildlife habitat. However, the forest aspect of the postmining land use plan cannot be immediately reestablished. For some years after mining, the ground cover species will provide the principal component of the postmining land use. Until those tree species which will naturally invade the site become established and the forest canopy begins to close shading out the ground cover species, the area will be dominated by herbaceous species and woody shrubs. As such, 20 to 30 years may be a reasonable estimate of time required before the open, herbaceous habitat begins to give way to the more closed, forest cover habitats.

The future location of CTSP is 3.1 miles south southwest of the proposed mine site. Although currently planning to purchase the area for future construction of CTSP, the State has not yet purchased the property in question. CGNHP is located approximately 7.8 miles east of this proposed mine. CGNHP is not in the viewshed or watershed of this proposed mine site and as such, is unlikely to be impacted by the proposed mining.

4.6.2 Alternative B (Disapproval)

Under Alternative B, there would be no disruption of the proposed permit areas vegetation, and no effects to loss of forested area. Similarly there would be no impacts to loss of wildlife habitat or streams.

4.7 Wetlands and Riparian Zones

4.7.1 Alternative A (Proposed Action)

An evaluation of the flooding potential resulting from both the individual proposed mine site and for all mining within the cumulative impact area (CIA) watershed was developed as part of the evaluation of the proposed permit. The evaluation concluded that there will be little or no increase in the flooding potential in this area because of the proposed surface mining operation. A discussion of flooding potential is included in detail in the permit application and OSMRE's CHIA (Appendix E).

If jurisdictional wetlands could not be avoided within the proposed permit area, the permittee must initiate the Section 404 permitting process with the USACE. Mitigation for the loss of wetlands would be coordinated and determined through the 404 permitting process.

4.7.2 Alternative B (Disapproval)

Under Alternative B, there would be no disruption of the proposed permit areas that would affect existing wetlands or riparian zones.

4.8 FISH AND WILDLIFE RESOURCES

4.8.1 Alternative A (Proposed Action)

Wildlife within the proposed permit area will be adversely affected during mining. Equipment noise associated with the proposed mining activity will likely cause the more mobile species to relocate into nearby areas further removed from the noise. During the 9.2 year life-of-mine, existing vegetation and soils will be removed. These mining activities would result in some direct mortality of slow-moving animals, temporary loss of habitat (food and shelter) in the areas of proposed disturbance, and further displacement of more mobile species into adjacent habitats.

In a 2011 OSMRE-funded acoustic study related to coal mining in the North Cumberland Wildlife Management Area, using 45 dBA as the threshold for wildlife impacts, the study found that the area in which wildlife could be affected by noise associated with a large surface contour mine is 2,392 acres (Ambrose et al. 2012). While 2,392 acres represents the approximate size of the impact area, the study notes that the actual size of the impact area varies depending on the topography of the mined area which influences attenuation rates of mining sounds. The study further notes that given the rate at which such mining typically progresses along the contour, impacts of noise due to surface contour coal mining are normally temporary in any given area (generally less than one year).

As for impacts to wildlife, the 2011 study notes that it is not currently possible to know and understand how and at what levels human caused sounds impact animals as there are too many

different species and too many different scenarios of human-caused sounds to understand all the possible combinations. The study notes however that overall, available literature suggests that intermittent human-caused sounds <40-45 dBA do not significantly impact wildlife species while chronic (near continuous) noise levels >45 dBA appear to impact some species but not others as some species are more tolerant of noise. When sound levels are >45 dBA, the impacts are likely variable and impact different species differently. Wildlife reaction to human-caused sounds can range from mild, such as an increase in heart rate to more damaging effects on metabolism and hormone balance. Responses may vary among species of animals and among individuals of a particular species. Minor responses may include head-raising and body shifting, while more overt responses may include running or moving short distances; birds may fly or exhibit other alert or nervous behavior. Panic and escape behavior can result from more severe disturbances, although some species adapt to such disturbances. Behavioral and physiological responses have the potential to cause injury, energy loss (from movement away from noise source), decrease in food intake, habitat avoidance and abandonment, and reproductive losses. For example, studies have shown that when certain bird species are flushed from nests in response to noise, eggs may be trampled or ejected from the nest, and young are exposed to injury and predators (Ambrose et al. 2012).

As mining activities proceed over the life-of-mine (9.2 years), the subsequent reclamation of the disturbed areas would reduce impacts to local populations of wildlife. Results of restoration studies performed on reclaimed mines at Brushy and Walnut Mountains (TVA 1981), as well as other studies elsewhere, support this conclusion. These studies indicate that wildlife quickly move into reclaimed habitats. Populations of small mammals moved into reclaimed areas within 2 months of planting new vegetation and breeding aggregations of amphibians were noted within settling ponds within the first year. These areas were quickly repopulated by species that favor early successional habitats. Species that favor successional habitats and forest habitats would later move into the reclaimed areas as the vegetation required to establish these habitats becomes established.

The proposed reclamation plan was developed with consideration of the comments from USFWS and the surface owner of the property. Specific reclamation activities designed to enhance wildlife populations on the reclaimed mine include revegetation of the area with grasses, retaining the sediment basins as a permanent wetland habitat, and planting a mixture of trees following mining. The reestablishment of the forest habitat that will ultimately occur on this site following mining and reclamation activities will help provide connectivity between forested areas downslope from the mine and the ridgetop and sideslope areas above the proposed mine site. Retention of wetland areas following mining will provide the opportunity for hydric vegetation to invade the area, thus increasing habitat diversity and subsequently greater diversity of wildlife species re-inhabiting the reclaimed areas. Creation of the “edge effect” and establishment of various grass and tree species in the proposed reclamation plan should

complement TWRA's efforts to re-establish an elk population in this area. The open area that will exist for some years in an otherwise forested habitat will provide enhancements for some neotropical songbird species such as the golden-winged warbler. Once revegetation occurs and the site is reclaimed, this site will provide habitat for forest-interior bird species such as the Cerulean warbler.

Impacts to fishery resources are best analyzed in the context of impacts to their habitat or water quality. Potential impacts to the receiving stream associated with this proposed mine site are discussed in the PHC and HRP prepared by the applicant and in the CHIA prepared for this site by OSMRE. The analysis in the CHIA's considers all existing and anticipated mining operations and addresses potential cumulative hydrologic impacts to CIA 10, Subareas 1 and 1B.

These assessments generally conclude that while there is a potential for acid/toxic drainage, total suspended solids (TSS) and sediment loads into Rock Creek, Straight Creek, Hurricane Creek, Valley Creek, and Clear Fork will increase during mining. These effects would be minimized by measures to be implemented during active mining and during reclamation of the site. Surface water monitoring of the stream, and of the settling basin discharging to the stream, would be conducted in accordance with SMCRA and the Clean Water Act National Pollutant Discharge Elimination System (NPDES) permit requirements to ensure that water quality impacts to receiving streams are minimized. The SMCRA and NPDES permits will also require periodic monitoring of the streams' biological conditions.

The increased TSS and sediment levels may cause a measurable impact on the macroinvertebrate community present in the headwater tributaries of Rock Creek, Straight Creek, Hurricane Creek, Valley Creek, and Clear Fork that receive discharge from this proposed mine site. This impact would likely take the form of reduced numbers of macroinvertebrates present in the tributaries of these streams and a shift from pollution intolerant to pollution tolerant species. Once mining ceases, the site is reclaimed, and haul road usage essentially ends, impacts to the macroinvertebrate community should be reduced and the community will gradually return to pre-mining conditions. The proposed disturbance associated with this mine makes up approximately 2 % of the total acreage present within the watershed of this mine (i.e. CIA 10, Subareas 1 and 1B). The hydrological analysis in the PHC / HRP and the CHIA indicates that water quality in these streams should remain within acceptable limits and would not significantly exceed existing conditions. Therefore, this proposed mining activity would likely result in temporary impacts in the headwater area of portions of Rock Creek, Straight Creek and Clear Fork and is unlikely to jeopardize fishery resources in the Clear Fork drainage system.

4.8.2 Alternative B (Disapproval)

Under Alternative B, there would be no disruption of the proposed permit areas existing fishery and wildlife resources. The current land use would not change and the TSS would not increase due to mining related activity.

4.9 SPECIAL STATUS SPECIES

4.9.1 Alternative A (Proposed Action)

Species that have been identified by commenting agencies or by survey as having special protection status under Federal or state law are identified above. Measures to prevent, minimize, and/or monitor potential impacts were developed and evaluated in a series of correspondences between the OSMRE, and the applicant.

For the Indiana bat and northern long-eared bat, protection / enhancement measures include:

- Surveying the proposed mine site for winter hibernacula (caves or abandoned mine portals). No winter hibernacula that could be used was identified
- Minimizing potential impacts summer roost habitat by limiting tree removal from November 15 – March 31 annually when the bat would be hibernating in caves / underground mine portals (requested exemption for first 2 years in BO to allow cutting from March 2017 to May 31, 2017, August 1, 2017 to 31 May 2018, August 1, 2018 to March 31, 2019)
- Creating potential habitat (i.e. exfoliating bark on trees) for the Indiana bat by girdling trees around the perimeter of the proposed mine site
- Planting exfoliating bark tree species during reclamation that will in the long-term, provide potential summer roost habitat for Indiana bats
- Retaining ponds as permanent shallow depressions following mining to enhance the potential food source (insects) for the bat

For the blackside dace, these measures include:

- Utilizing previously existing roads to access the proposed mine site such that road construction work will be minimized
- Constructing 25 sediment control ponds to control runoff from the proposed mine (the ponds are located at sites approved by both OSMRE and TN Division of Water Pollution Control). All ponds would be converted to a wetland-type habitat following mining and will provide limited sediment control into the future and a possible source of sustained stream flow during dry periods
- Resurfacing haulroads with durable material and constructing sediment sumps to control run-off from haul roads not located in sediment pond drainage areas

- Monitoring pond discharges and storm water run-off to help assure compliance with discharge limitations
- Conducting water quality monitoring of surface (stream) and ground water sources to help assure that nearby waters are protected as per the proposed mine plans
- Conducting periodic stream surveys to monitor the streams' biological conditions and benthic surveys as per the SMCRA and NPDES permits
- Maintaining a sediment clean-out level of 80 percent of pond storage capacity and 50 percent of sump storage capacity
- Stabilizing all spillways, ditches, diversions, and culvert discharge locations with vegetation or rip-rap as required to control potential erosion
- Providing a contingency treatment plan for any acid/toxic drainage that may develop during mining
- Providing alternative sediment control (BMP) measures such as hay bale dikes, silt fence, and/or prompt seeding / mulching for small areas that cannot otherwise be diverted to a sediment pond (e.g. out slopes of roads, ditches, basin embankments, etc.)
- Providing a materials handling plan for any materials that were identified as having any potential for producing acid/toxic drainage
- Promptly revegetating disturbed areas utilizing tree and grass species that should quickly stabilize exposed soils and provide habitat for a variety of terrestrial and aquatic species

After having considered the measures incorporated in the proposed permit application to prevent, minimize, or mitigate impacts to protected species and the impacts to the hydrologic regime predicted in the permit application and OSMRE's CHIA for this proposed permit, OSMRE concludes that the proposed surface coal mining operation is predicted to provide adequate protection for the above Federally-listed endangered species.

OSMRE has concluded that the proposed mining may adversely affect the blackside dace. While no permanent populations are known to currently inhabit the streams receiving runoff or drainage from the mine permit boundary, the potential for water quality and habitat changes in those receiving streams could affect blackside dace individuals as they migrate to or from existing populations in Rose Creek and Buffalo Creek in the Clear Fork system downstream of the proposed mining.

As for the gray bat, OSMRE bases its determination on the following facts; (1) no caves or underground adits that would provide potential hibernacula for gray bats are present within the proposed permit area, (2) no bats were actually collected in the mist net surveys discussed above. However as described above, with a relatively high degree of certainty, acoustic monitoring in a survey conducted 1.6 miles from the proposed permit area did detect the presence of a gray bat in the area, (3) the biological characteristics of this species are such that forest habitats such as are

present in this area do not provide hibernacula for this species. Gray bat use of the forested areas is typically for foraging purposes only, (4) tree removal activities will be precluded during the foraging period for this species, and (5) an abundance of forested habitat will remain intact within the cumulative impact area even if the proposed mining disturbance occurs. The absence of cave/adit hibernacula in the area of this proposed mine site, the preclusion of tree removal activities during the foraging period for this species, and the abundance of forested habitats in this area supports a conclusion of no effect on gray bats.

As for the Indiana bat and northern long-eared bat, OSMRE concludes that the proposed mining would adversely impact these two species by adversely impacting the habitat potentially utilized in summer by these species. OSMRE bases its determination on the following facts; (1) no caves or underground adits that would provide potential hibernacula for bats are present within the proposed permit area, (2) in lieu of conducting a mist net survey to determine if bats were utilizing the proposed permit area as summer roost habitat, the applicant has assumed these species are present and utilizing this area, (3) mist net surveys recently conducted in the vicinity of the proposed mine site in areas that were geographically and topographically similar and of similar vegetative characteristics found that northern long-eared bats were present, and (4) although much of the proposed permit area has been logged within the last 6 years, trees that could provide potential summer roost are likely to be present within the proposed area of disturbance. While the above facts support a determination that it is unlikely that the proposed mining would have any effect on winter hibernacula for bats, the mining would adversely impact habitat potentially utilized in summer by these bat species. Based on the applicant's assumption of presence of the species, OSMRE must conclude that the proposed mining would adversely impact the Indiana and northern long-eared bats. Given the extent of forested habitat remaining in the cumulative terrestrial impact area that would remain available as summer roost habitat for these bats species and the measures to minimize the duration and extent of impacts to bats as described above in the protection and enhancement measures, USFWS has concluded that the proposed mining is not likely to jeopardize the continued existence of these two species.

The proposed mining operation will impact bird species that inhabit the proposed permit area. No bird species identified as threatened or endangered under Federal law are known to be present within the area of proposed disturbance or adjacent areas. Two bird species of concern that may be present within the proposed permit area are the cerulean warbler and golden-winged warbler, both of which are listed by the State as "in need of management." If present in the vicinity of the proposed mine site, mining-type impacts such as vegetation removal, noise, and dust will likely force all bird species from the proposed mine site and adjacent areas. However, soon after an area is reclaimed, the proposed reclamation plan should provide good habitat for species such as the golden-winged warbler, a species that prefers open, early successional habitats. The restoration of forest habitat for species such as the cerulean warbler will take much longer. The cessation of mining activities would allow bird species to re-inhabit any adjacent

areas that they left due to impacts such as noise and dust; however, habitat preferred by species such as the cerulean warblers would take many years to return to the disturbed portion of this site as this species prefers mature forest habitat. It is unlikely that the proposed mining would increase predation of nests by species such as cowbirds as the previous mining and logging activities have likely already opened the forest habitat in this area up to any nest-predation impacts.

Once reclamation activities have concluded and vegetation is beginning to become established, species that live, breed, or forage in early successional habitats such as the golden-winged warbler, four-toed salamander, big-eared and small-footed bats, southeastern shrew, hairy-tailed mole, eastern spotted skunk, and southern bog lemming could re-colonize the area. Local populations of some of these species could increase slightly, and the reclaimed mine would provide suitable habitat for these species for many years. Forest dwelling species would experience a slight reduction in habitat and local populations of some of these species would be slightly reduced. This reduction in number represents a small fraction of the population of these species likely present in the area as well as in the Cumberland Mountains. The mined area would over time revert to forest and would provide suitable habitat for forest-dwelling species. Due to the large amounts of suitable habitats nearby, impacts would be unlikely to affect the continued population viability of these species in this area of the Cumberland Plateau (TVA, 2002).

In addition to the Federally-listed blackside dace, 5 other aquatic species were reported by the DNA as having been identified in past stream surveys within a 4 mile radius of the proposed mine site. The emerald darter, arrow darter, rosyface shiner, and tangerine darter have been classified by the State as “in need of management while the silverjaw minnow is listed by the State as “threatened.” A review of the DNA database revealed that each of these 5 species have been historically identified in surveys as being present within 1 mile downstream of the proposed mine site proper with the exception of the tangerine darter which was identified in Laurel Fork some 3.2 miles northwest of the proposed mine site. Laurel Fork will not receive drainage from this proposed mine site. After considering previous biological survey results in the surrounding streams and the control measures incorporated into the application to prevent and/or minimize impacts to aquatic species, it is likely that the proposed mining activity would result in little if any impacts to these fish species.

As information obtained from DNA and USFWS reported neither the occurrence nor probability of occurrence of protected plant species in the proposed permit area or within 1 mile of the area and as the proposed mine site and adjacent areas have been disturbed to varying degrees over the over the last 30 – 40 years by logging, oil and gas exploration, and mining activities, OSMRE has concluded that it is unlikely that protected plant species would be present in the portions of the proposed permit area to be disturbed.

OSMRE has concluded that the operation, as proposed, should not affect the continued existence of any State or Federally-listed threatened/endangered species or species of concern.

4.9.2 Alternative B (Disapproval)

Under Alternative B, there would be no disruption of the proposed permit areas existing terrestrial habitat. The current land use would not change and there would be no new impacts to threatened and endangered species.

4.10 SOCIOECONOMICS

4.10.1 Alternative A (Proposed Action)

The proposed mining activity will provide jobs and tax revenues for the local and state governments. The applicant has indicated that approximately 40 people will have direct employment with the coal company at this mine during the life of this proposed project. Goods and services purchased in the area by the applicant and employees of the applicant will provide direct support to the local economy, and through sales tax revenue, will provide indirect support to the local and state governments. The federal government will of course collect personal and business income tax revenue. The applicant must also pay a fee to the federal government of \$0.28 per ton for each ton of coal removed to help reclaim pre-SMCRA abandoned mine sites. Local and state governments also receive \$1.00 per ton in tax revenue for each ton of coal removed. Revenues received by the local and state governments are an offset to expenses incurred by these government entities for things such as increased public road maintenance. The employment and tax revenues provided by the proposed mine will end upon completion of mining and reclamation activities.

4.10.2 Alternative B (Disapproval)

Under Alternative B, there would be a disruption of the proposed permit areas existing socioeconomics. Local and state governments depend on the revenue from coal mining. Coal mining provides jobs and income for the local community.

4.11 ENVIRONMENTAL JUSTICE

4.11.1 Alternative A (Proposed Action)

As indicated in section 3.13, a portion of the population of Claiborne County lives in households with incomes below the poverty level. When compared to state and national standards, this county has a disproportionate level of low-income areas. In this respect, the communities in the

vicinity of the proposed permit area are likely typical of much of the rural, Appalachian coalfield communities as they likely include a disproportionate number of low-income households. The EA has predicted varying levels of impact, from no impacts to minor or moderate impacts, to such resources as aquatic habitats; historic/cultural resources; surface and ground water hydrology; air quality; and aesthetics (visual, background noise, and blast vibrations) at residential or public use areas. The provisions of the proposed application provide for the safety of the public. No reasonably foreseeable cumulative adverse impacts are expected to affect the surrounding communities as indicated, for example, in the cumulative hydrologic impact assessments prepared in association with this proposed permit. Should significant human health or environmental effects have been associated with the proposed issuance of this permit, these effects would likely have been disproportionately high on the nearby rural communities in this area. As only minor to moderate impacts are anticipated because of the proposed issuance of this permit, the communities in this area are not anticipated to be significantly affected.

4.11.2 Alternative B (Disapproval)

Under Alternative B, there would be no disruption of the proposed permit areas existing resources such as aquatic habitats; historic/cultural resources; surface and ground water hydrology; air quality; and aesthetics (visual, background noise, and blast vibrations) at residential or public use areas.

4.12 VISUAL RESOURCES

4.12.1 Alternative A (Proposed Action)

During the life-of-mine, portions of the proposed mine site proper and associated Haul Road No. 1 are likely to have adverse visual impacts on the public, particularly in the winter months when the foliage is largely off the trees. The proposed permit area will not be visible from CGNHP. While existing vegetation, and to a lesser extent topography, would limit to some extent the visual impact, the users of State Highway 90 and Rock Creek Ridge Road and a number of the residences in the Clairfield community will be able to see the mine site from the public roads or the nearby homes. The mine site proper and associated haul roads will also be visible to the occasional person who may be pursuing recreational interests (e.g. hunting, 4-wheeling, etc.) in this area. As reclamation is completed and vegetation established, impacts to scenery would diminish markedly. As the trees that are planted or would otherwise naturally invade the reclaimed site (e.g. yellow poplar, maples, etc.) begin to close canopy and develop a more natural deciduous forest cover, scenic values in this area will more closely approximate those that existed prior to any mining. The haul roads proposed to be used in association with this permit are existing and will be retained as permanent features in the postmining environment and as such, visual impacts associated with the haul roads would be permanent. In addition, areas that were previously mined and not reclaimed or were left inadequately reclaimed (AML) will be

reclaimed as part of this application. An estimated 180 acres of AML reclamation will occur with this proposed mining operation.

The applicant has indicated their intent to run two shifts per day (which will continue work after daylight hours) at this proposed site. As such, the lighting required for operations at night would have a marginal but incremental impact on visual resources by contributing to an increasing brightness of the night sky. As the night sky brightens, contrast is reduced and astronomical bodies become harder to see. This impact would be most prevalent during the winter months when daylight is shortest and least noticeable in the summer when the period of daylight is longest. Due to the distance between residences in this area and the mine site proper as well as the topographic features and vegetation between the homes and the site, it is unlikely that lighting required for operations at night would have any nuisance-type impact on these residences.

4.12.2 Alternative B (Disapproval)

Under Alternative B, there would be no disruption of the proposed permit areas existing visual resources. Due to the proposed site being re-mining, the pre-existing highwalls will not be reclaimed and restored to pre-mining characteristics.

4.13 ACCESS AND TRANSPORTATION

4.13.1 Alternative A (Proposed Action)

The nature of coal mining activities in Tennessee dictates that, with few exceptions, once coal is extracted from the ground, it moves to market by truck via both private and public roads. In the case of the proposed Kopper Glo Mining, LLC mining operation, all coal will be transported from the site by truck to the nearby Marion Tipple facility. Coal haulage will not occur on Sunday as the company normally does not work on Sunday. This coal haulage will likely be the dominant factor influencing both road maintenance and the safe use of public roads. The occasional transport of mine supplies to the site and the daily ingress and egress of the approximately 40 workers who will be employed at the site are much less likely to adversely impact public road use. All vehicular traffic will enter and leave the site via the existing haul roads. Coal trucks will likely enter and leave the public road (an unpaved county road) at one of three locations. At the points where coal trucks will enter and exit the unpaved county road from the haul road, adequate lines of sight are present such that given legal and safe speed limits on these roads, there should be ample opportunity for coal trucks to enter and exit the county road without placing public safety in jeopardy. OSMRE's conclusion as to public safety is supported by the fact that no person or agency has made OSMRE aware of any undue risk (i.e. increased frequency of accidents) that coal truck use of this portion of the public road system has created

over the past 30 or more years, the time period for which the haul roads have been existing at their current locations.

There is little doubt that the projected increase in coal truck traffic (trucks being the heaviest mine-related vehicles to regularly use the public roads) will increase the need for road maintenance on the approximate 1.6 mile long section of unpaved county road that the trucks will use when transporting coal from the haul road to the nearby coal processing and loading facility. The extent to which this “wear and tear” on the public road may affect safety is a function of how responsive the respective highway departments are to the need for maintenance. This unknown variable (responsiveness of the highway departments) essentially makes it impossible for OSMRE to analyze the impacts that road maintenance would have to public safety. The economic impact that this increased maintenance cost would have on the highway departments is also an unknown. However, the applicant does pay a severance tax of \$1.00 per ton to local/state governments. With a projected annual coal production of 209,000 tons, this would result in net annual tax revenue collection of \$209,000. This tax, as well as the sales tax revenues the local governments will realize on goods and services purchased in support of the proposed mine, may be considered as an offset to any costs (e.g. road maintenance costs) incurred by local and state governments. Any impacts to public roads will end with the completion of coal removal activities, a period expected to last approximately 9.2 years.

4.13.2 Alternative B (Disapproval)

Under Alternative B, mining would not occur in the proposed permit area and there would no impact on current traffic along public roads.

4.14 SOLID AND HAZARDOUS WASTE

4.14.1 Alternative A (Proposed Action)

The permittee has developed an Acid/Toxic Materials Handling Plan due to coal stockpiles, acid/toxic strata, and sediment pond and coal fine trap wastes potentially existing on the site during mining. The coal to be mined and temporarily stockpiled on site is potentially acid forming material. The coal will be temporarily stockpiled in the pit or near the haulroad while awaiting shipment and runoff from the stockpiles will be directed to the sediment basins. No on-site disposal of coal is anticipated to be necessary. Pit cleanings will be scraped to the highwall side of the open pit away from any discharge from auger holes or intercepted underground workings and covered with a minimum of four feet of non-acid or toxic forming strata during the backfilling operations. The volume of material generated by the pit cleaning is anticipated to be less than ten percent of coal seam being mined and is represented in the weighted net acid base accounts as the ten percent of un-recovered coal.

Sediment pond wastes will be disposed by sampling and analyzing the material for the net acid base account, spreading the material on a level area, amending the material with agricultural lime, if deemed necessary by the analysis, then seeding and mulching the area. The amount of lime amendment will be sufficient to bring the material to an overall net acid base account of zero or higher.

The grease, lubricants, flammable liquids, garbage, and treatment chemicals will be stored near the work area in sealed containers. The amount of grease and lubricants to be stored on-site will be limited to the amount necessary to ensure efficient operation of the equipment and will be stored on their original containers. Empty lubricant containers will be returned to the distributor or taken to a state approved landfill. Fuel will be stored in metal containers to prevent leachates or spills from entering the ground and surface water systems. Where applicable, items will be returned to their owners such as flats, drums, parts, etc. Rubber tires will be returned to the distributor or taken to a state approved landfill. All other materials will be hauled to a state approved landfill capable of handling such materials.

4.14.2 Alternative B (Disapproval)

Under Alternative B, no mining would occur on the proposed permit area and there would be no impacts from solid or hazardous waste.

4.15 NOISE

4.15.1 Alternative A (Proposed Action)

As discussed in Section F.2 above, because of the rural nature of this area, background or ambient noise levels are expected to be low. In a noise study of a similar rural area in the southern Cumberland Plateau area of Tennessee, ambient noise levels were estimated in the 35-40 decibel (dB) range (USDOJ/OSMRE, 1986). The primary mining-related sources that would contribute to noise impacts are blasting, equipment operation, and coal transportation.

Blasting would be the strongest and most pervasive source of noise associated with mining. Under the Federal regulations [30 CFR 816.97(b)], noise associated with blasting may not exceed 129 to 133 db depending on the type monitoring equipment used to measure the blast noise. These standards have been set to protect public health and safety and were not intended to preserve the highest levels of aesthetic qualities in an area. Under Federal regulation, blasting will occur only between sunrise and sunset. Typical reported operating patterns for Kopper Glo Mining, LLC indicate that blast events occur once per day and may, on occasion, occur twice in a given day but will not occur on Sunday as the company does not work on Sundays. As such, blasting noise will occur infrequently (once or twice per day), will last only for a very brief period (i.e., a few seconds), will occur only during daylight hours, and will not occur on

Sundays. Although no impacts to health and safety are anticipated from airblast, blasting-related noise may have occasional nuisance-type impacts and thus adversely affect the quality of life of residents living in the nearby Clairfield and Eagan communities and the quality of the recreational experience of any lessees of the nearby properties or users of the nearby CGNHP. These impacts would continue for a period of five years, the anticipated life-of-mine.

In the above referenced noise study, noise levels from mining activities, including equipment operation and coal transportation, were estimated for 5 hypothetical mines at 10 representative sites. Noise level increases (expressed as average A-weighted sound level during a specified period of time, in this study 10 hours) at the 10 sites varied from 0 dB to as much as 16 dB. When added to the estimated noise levels for this rural area (35-40 dB), maximum noise levels would be in the range of 51 to 56 dB. The American National Standards Institute indicates that yearly average noise levels of 55 dB are compatible for neighborhood parks and 60 dB for wildlife and recreation areas (USDOJ/OSMRE, 1986). As such, projected noise levels occurring as a result of non-blast related mining activities would generally not raise noise standards in the vicinity of the proposed mine site above acceptable levels.

This is of course not intended to imply that local residents, those who use nearby public roads, or those that may lease hunting rights of nearby areas from the property owner won't notice the increase in ambient noise levels. Residents and people who may recreate in this area may notice noise level increases and perceive these increases to adversely impact the quality of life and/or the recreational experience that existed in this area prior to mining. These nuisance-type impacts associated with the proposed mining of the area will be perceived by the public to vary (i.e., annoying to hardly noticeable) depending on where the person is relative to the mining activity that is occurring. Any perceived noise increases associated with the proposed mining including coal haulage, will generally remain constant (i.e. occurring 6 days a week) through completion of coal removal activities. While noise will occur 6 days a week over the 9.2 year life-of-mine, the area of impact will move as the surface mining advances along the approximately 4 miles of proposed contour mining bench. Thus any perceived noise increase would persist in a given area for a period of time estimated to last for 6 to 12 months. Any noise increases associated with the proposed mining operation would essentially end upon completion of all mining and reclamation activities, a period of approximately 9.2 years.

In 2011, OSMRE funded a study of noise related to coal mining in the North Cumberland Wildlife Management Area. Using 55 dBA as the threshold for human impact, the study found that the area of impact for a large surface mine was 268 acres (Ambrose et al. 2012). Thus within an area of 268 acres surrounding the source of noise on a large surface mine, humans could be affected by exceeding a noise level generally accepted to represent an "annoyance" threshold. The study notes that the size of the impact area depends on the topography of the mined area which influences attenuation rates of mining sounds. The study further notes that

impacts of noise due to surface contour coal mining are normally temporary in any given area (generally less than one year).

4.15.2 Alternative B (Disapproval)

Under Alternative B, no new mining would occur in the proposed permit area and there would be no impacts from noise.

4.16 SOILS

4.16.1 Alternative A (Proposed Action)

As described in the discussion of soils, alteration of the previously undisturbed geologic profiles within the proposed permit area will occur on approximately 472.5 acres of surface disturbance. The disruption of the geologic strata in the area of the proposed contour mining will be complete in that the bedded sandstone and shale materials overlying the coal will be removed by the proposed surface mining. The thickness of the strata overlying the coal that will be disturbed will vary from approximately 50 - 100 feet. Disruption of these strata will be permanent. Where contour mining occurs, the Jellico coal seam will be removed during mining. Laboratory analysis of the geologic overburden materials revealed that potential acid/toxic material was present in the geologic strata to be disturbed by the proposed mining.

The proposed mining will disturb soils present within the proposed permit area. As described above, previous mining that occurred many years ago has altered the majority of the 472.5 acres proposed for surface disturbance. The amount of topsoil material salvaged and redistributed by the post SMCRA surface mining operations is unknown. The fractured sandstones and shales left on the surface following this mining have weathered over the years and have formed mine soils (Udorthents) that currently support a diverse vegetative cover. The Muskingham soils present in areas of the proposed mine site that were not disturbed by previous mining have been altered to varying degrees by logging, oil/gas exploration, and road construction activities. Kopper Glo Mining, LLC's proposed mining activities would result in the complete disruption of the soil profile present in the relatively undisturbed Muskingham soils as well as the Udorthents mine soils. Following clearing and grubbing, the applicant proposes to salvage sufficient amounts of the topsoil and subsoil beneath the topsoil, to provide a minimum of 4 feet of growth medium for reclamation. These materials will be redistributed over the entire area to be revegetated. This will provide the best available growth medium for reestablishing trees on the proposed mine site.

A recent study has been conducted on the redevelopment of soils on reclaimed coal mine sites in West Virginia (Sencindiver, 2001). The study was conducted on a number of mine sites that had been reclaimed for 8-30 years. This study indicated that although the mine soils varied, they are approaching stable, developed soils and should become more like the native soils as they

continue to develop. Based on the vegetative cover present on portions of this site, the mine spoils that were left to weather on this site following mining some years ago seem to bear out the conclusions of the Sencindiver study. So in the short term, re-disturbance to soils will be complete but mitigated to a large extent by the salvaging and redistribution of the soil growth medium. However, the study confirms that development of soils and soil profiles more similar to the native soils is likely to occur over a period of years following completion of mining.

4.16.2 Alternative B (Disapproval)

Under Alternative B, there would not be a disruption of the proposed permit areas existing soils. Therefore, there would be no impact to soil resources.

4.17 HEALTH AND PUBLIC SAFETY

4.17.1 Alternative A (Proposed Action)

The proposed permit was evaluated to determine if the proposed site would cause impacts to public health and safety. Blasting, use of the public road system by mining-related equipment, subsidence, flooding, and public access were identified in section 3.21 as possible concerns.

4.17.1.1 Public Access

The permittee provided a blasting plan that included measures regarding public awareness and to minimize risk to the public. OSMRE concludes that the plan presented includes reasonable and prudent measures to preclude inadvertent public access to the site and minimize the risk to public safety.

4.17.1.2 Blasting Impacts

Kopper Glo Mining, LLC's proposed blasting plan meets or exceeds the minimum programmatic requirements. This plan details those measures that will be taken to limit the impacts of airblast and ground vibration and to insure the safety of the public including nearby residents (i.e. within 1,000 ft. of the mine site), those who occasionally use nearby public roads, and those who may be in the area pursuing other interests such as hunting. Given the findings of the above referenced studies and the blasting impact control measures to be implemented by the applicant, it is unlikely that injury to persons or damage to property beyond the permit limits (i.e. significant impacts) will occur.

OSMRE recognizes and acknowledges that, in spite of enforcement of the existing regulations and the monitoring/control measures agreed to by the applicant, blasting concerns/complaints may occur. When coal mining operations are near populated or public use areas, complaints,

particularly those related to noise and vibration of homes (nuisance impacts), may still occur in relatively high numbers. Typical reported operating patterns for Kopper Glo Mining, LLC indicate that blast events occur once per day and may, on occasion, occur twice in a given day but will not occur on Sunday as the company does not work on Sundays. Although regulations provide a limited ability to control nuisance impacts (for example blasting may typically occur only between sunrise and sunset), these nuisance-type impacts may have periodic adverse effects on the quality of life of residents living in proximity to the mine site and/or on the quality of the recreational experience of those using portions of the nearby public lands. These nuisance-type impacts will occur at different times of the day. The regulations were designed to minimize damage potential and only indirectly address nuisance-related impacts. These nuisance impacts will end permanently when mining of the area is completed (i.e. a period of approximately 9.2 years).

4.17.1.3 Use of Public Roads

OSMRE's conclusion as to public safety on public roads is supported by the fact that no person or agency has made OSMRE aware of any undue risk (i.e. increased frequency of accidents) that coal truck use of this portion of the public road system has created over the past 30 or more years, the time period for which the haul roads have been existing at their current locations. There is little doubt that the projected increase in coal truck traffic (trucks being the heaviest mine-related vehicles to regularly use the public roads) will increase the need for road maintenance on the approximate 1.6 mile long section of unpaved county road that the trucks will use when transporting coal from the haul road to the nearby coal processing and loading facility. The extent to which this "wear and tear" on the public road may affect safety is a function of how responsive the respective highway departments are to the need for maintenance. This unknown variable (responsiveness of the highway departments) essentially makes it impossible for OSMRE to analyze the impacts that road maintenance would have to public safety. The economic impact that this increased maintenance cost would have on the highway departments is also an unknown. However, the applicant does pay a severance tax of \$1.00 per ton to local/state governments. With a projected annual coal production of 209,000 tons, this would result in net annual tax revenue collection of \$209,000. This tax, as well as the sales tax revenues the local governments will realize on goods and services purchased in support of the proposed mine, may be considered as an offset to any costs (e.g. road maintenance costs) incurred by local and state governments. Any impacts to public roads will end with the completion of coal removal activities, a period expected to last approximately 9.2 years.

4.17.1.4 Subsidence

The permittee will minimize the risk of subsidence and if subsidence related damage should occur to the area above the proposed auger / highwall mining, the applicant will be required to, and has committed to, restoring the affected land to the extent technologically and economically

feasible. This will include regrading the land to a condition capable of maintaining the value and reasonably foreseeable uses which it was capable of before subsidence.

4.17.1.5 Flooding

The flooding evaluation concluded that there will be little or no increase in the flooding potential in this area as a result of the proposed surface mining operation. A discussion of flooding potential is included in greater detail in the permit application and CHIA for this permit application (Appendix E).

4.17.2 Alternative B (Disapproval)

Under Alternative B, there would not be a disruption of the proposed permit areas existing health and safety concerns. Therefore, there would be no impact to health and public safety.

CHAPTER 5. CUMULATIVE IMPACTS

5.1 INTRODUCTION

Cumulative impacts are those impacts that result from incremental effects of an action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or other entity undertakes such other actions.

5.2 PAST AND PRESENT ACTIONS

Past and present actions in the general area include past coal mining, timber harvest, recreation, and oil and gas development.

5.3 REASONABLY FORESEEABLE FUTURE ACTIONS

Reasonably foreseeable future actions in the general vicinity include undeveloped land and wildlife habitat. It is also possible that the land will be used for industrial/commercial development for oil and gas. Oil and gas rights have been leased out on portions of the property.

5.4 CUMULATIVE IMPACTS

The following section describes potential cumulative impacts to resources in the vicinity of the Project Area from the past, present, and future actions in conjunction with Alternatives A and B. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 CFR Part 1508.7). The cumulative impacts analysis area (CIAA) varies by resource. It may be restricted to the immediate Project Area (e.g., for soil impacts) or an entire watershed (e.g., for water resources). For the analysis of the cumulative impacts, it is assumed that all design features would be implemented.

5.4.1 Topography

The cumulative impacts from Alternative A would be the change in topography during the life of the proposed mine site. The approximately 5.11 miles of preexisting highwalls would be reclaimed during the mining and reclamation phases. Once reclamation has been completed, the area will be returned to premining conditions.

5.4.2 Air and Climate Resources

The cumulative impacts from Alternative A would unlikely lead to dust and fumes associated with blasting operations at this proposed permit site to cause any health or nuisance impacts to nearby residents or the occasional user of nearby public roads. When it comes to GHG emissions, the contribution of any individual mine typically found in the Tennessee coalfield is

unlikely to make any significant contribution to the global warming issue. Cumulative impacts under Alternative B are considered less than negligible.

5.4.3 Geology

The cumulative impacts from Alternative A would be the removal of coal. The mine is expected to have an average annual production of approximately 360,000 tons and life-of-mine production of approximately 3.3 million tons of coal would be mined. Other geologic features in the area would remain in place and would not be impacted as they typically occur at greater depths than where mining would occur. Other actions that may cumulatively impact geological resources are limited to oil and gas development. Oil and gas drilling would not be allowed until mine reclamation is completed. Cumulative impacts from these activities would be minor to moderate as geologic resources are removed.

5.4.4 Water Resources

Factors outside of surface mining have affected the Straight Creek and Valley Creek Watersheds. Some of the factors include logging, oil and gas wells, and straight pipes that drain into the creeks. The cumulative impact area drainage accounts for 84,226 acres. When comparing the 2001 National Landcover Dataset (NLCD) to the NLCD 2011, it is evident that the watershed landcover has changed over the 10 year period. The analysis shows a loss of forest landcover and an increase in barren, shrub/scrub, and grassland/herbaceous landcover types. Since 2011, the watershed has continued to be logged. As of 2014, 102 oil and gas wells occurred in the watersheds (67 in the Straight Creek watershed and 35 in the Valley Creek watershed).

Given the combination of design features, mitigation measures, and reclamation that would be implemented, the contribution of the proposed mining would have negligible cumulative impacts. Additionally, in the context of other land uses and processes that are currently occurring or may occur in the future, the cumulative impacts would be lessened by the amount of habitat that would remain available.

5.4.5 Cumulative Hydrologic Impacts (Wetlands and Riparian, Water Resources)

A specific analysis of the cumulative hydrologic impacts to the surface and ground water systems associated with the proposed permit is found in the CHIA on page III-1 of the decision document. In summary, the conclusion of the CHIA is that the proposed mining operation has been designed to prevent material damage to the hydrologic balance of Subareas 1 and 1B. A detailed description of the anticipated impacts to the hydrologic environment can be found in the CHIA.

5.4.6 Cumulative Terrestrial Impacts (Vegetation, Fish and Wildlife Resources, Special Status Species, Visual Resources)

In selecting an appropriate area for which a cumulative terrestrial impact evaluation could be conducted, a downstream point was established such that when the upstream watershed was looked at in its entirety, the above criteria for selecting a cumulative terrestrial impact area would be relatively well reflected. For example, an appropriate cumulative terrestrial impact area for this mine might be the area defined by the receiving streams for this proposed mine and the other mines located in this portion of Claiborne County. The cumulative terrestrial impact area would then be comprised of the drainage area of Clear Fork Creek measured upstream from just below the confluence with Tackett Creek and a portion of the Bennett's Fork watershed.

Using this drainage area to define a cumulative impact area, the total acreage in the cumulative impact area would be approximately 84,226 acres. Using the 2011 National Land Cover Database developed by a consortium of Federal agencies and available for review on the web at http://www.mrlc.gov/mrlc2k_nlcd.asp, approximately 67,298 acres (79.9%) of the cumulative evaluation area was forested in 2011. Approximately 11,490 acres (13.6%) were in land cover types that may be representative of mining, logging, and/or oil/gas type disturbances (land cover types such as barren, grassland, hayland, and shrub-scrub located above the 1,300 ft. elevation). If the 2011 data is modified to include disturbed acreage for coal permits issued between 2011 and July 11, 2016, an additional 2,696 disturbed acres would be added to the mining-logging-oil/gas land cover type, increasing this land cover type from 13.6% to 16.8% of the area. If further modified to include the disturbed acreage of the proposed permit area for Cooper Ridge Permit 3270 (472.5 acres) and the disturbed acreages of the other proposed permit applications currently on file and pending Federal review and action (864 acres), the mining-logging-oil/gas land cover types increase by an additional 1.6% to 18.4% of the total cumulative evaluation area acreage. The addition of disturbed acreage for coal mines permitted since 2011 or otherwise pending would reduce the forested portion from 79.9% to 73.9% of the total cumulative impact area.

However, in a cumulative sense, it may be inappropriate to consider the removal of the forest cover as a "loss" beyond that which has normally or typically occurred in years past in the Appalachian region of the country. In a very localized sense, the removal of this forest cover would be a loss and will have impacts as described in this document. However, on a larger scale, forest loss in one area is typically offset by forest gain in another area. Forests constantly change and evolve as a result of tree growth, aging, disease, fire, and human disturbances continually affecting the extent and composition of the forest. For example, as one area is disturbed by mining or logging activity (i.e., forest cover removed), other areas that were affected years ago by similar activities such as logging or agricultural development revert back to forest.

This concept is reinforced by information available on the U.S. Forest Service web site at <http://srsfia2.fs.fed.us/states/tennessee.shtml>. The U.S. Forest Service's Forest Inventory and Analysis (FIA), provides data on the nation's forest census. A comparison of 1961 and 2004 forest census data for the State of Tennessee revealed that in 1961, the state was 52% forested the same as in 2004. During the 1999 – 2004 period, live tree volumes increased from 25.5 billion cu. ft. to 25.9 billion cu. ft. Net growth-removal ratios were positive for hardwoods (1.8 million cu. ft. growth for every 1 million cu. ft. removal). Thus forest "losses" are generally offset by forest "gains" realized by the natural order of succession in the Appalachian region to a forested community. As indicated by this data, forests are dynamic. When evaluating impacts to a species whose range is expansive, such as the cerulean warbler (summer range essentially encompasses central Appalachia and adjacent areas) it is important to examine the cumulative loss of forest on an appropriate scale.

As described above, the proposed implementation of operation and reclamation plans result in direct impacts to terrestrial animal populations in the project area. However, due to the large amounts of similar habitat in the proposed project area, impacts to terrestrial wildlife in the region resulting from the proposed Kopper-Glo mine and the other permits pending Federal review and action, would be temporary and are unlikely to have adverse impacts on the wildlife population as a whole in this area. The project is not expected to result in significant cumulative impacts to terrestrial animal communities, increase populations of exotic or invasive terrestrial animals, or result in significant adverse impacts to migratory birds in the region.

5.4.7 Cultural and Historic Resources

The Historic Preservation Office has reviewed the proposed permit for compliance by the participating federal agency or applicant for federal assistance with Section 106 of the National Historic Preservation Act. It has been determined that there are no National Register of Historic Places listed or eligible properties affected by this undertaking. There would be no cumulative impacts under either Alternative A or Alternative B.

5.4.8 Environmental Justice

Pursuant to Presidential Executive Order 12898, "Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations (February 11, 1994)," (<http://www.nonnoise.org/library/execords/eo-12898.htm>) federal agencies are required to evaluate the impacts of a federal action (e.g., issuing an OSMRE permit in Tennessee) to determine if the proposed action will disproportionately affect a minority, low income, or culturally distinct community or population. This executive order, commonly referred to as the "environmental justice" (EJ) order, is intended to see that no person or group of people should shoulder a disproportionate share of the negative environmental impacts resulting from the

execution of this country's domestic and foreign policy programs. Issuing a permit under the Tennessee Federal Program is considered a federal action subject to the requirements of an environmental justice review. In preparing the EJ review in this document, each alternative was considered as to the potential impacts of the alternative on identified EJ populations. To the extent that low-income populations are prevalent in the coalfields of Appalachia, the impacts of a proposed surface coal mining operation would generally be felt disproportionately by these environmental justice populations. The most notable impacts to be felt by coalfield residents are the operational disturbances, particularly blasting. For example, blasting can be particularly problematic as low-income persons may be considered more likely to live in non-traditional housing and may utilize poorly constructed water wells as their drinking water source. Such structures may be more vulnerable to damage by blasting vibrations lower than levels that would affect structures built to modern standards (USDOJ/OSMRE, 2002a). However, SMCRA blasting regulations provide for modifying blasting performance standards to account for these circumstances.

Although mining in Appalachia may be more likely to affect a low-income population as these populations typically make up a greater percentage of the population than is generally found outside Appalachia, it should be noted that the decision to mine coal is based on other factors such as the geologic location of mineable coal deposits. Thus, the ability to mine in a particular location is an economic one and there is no reason to believe the presence or absence of an environmental justice or any other segment of the population affects the decision to mine.

OSMRE has, during the permit application review process and development of this NEPA document, focused attention on human health and environmental conditions in the communities that may be affected by the proposed mining activities. The public participation process associated with this proposed application has been inclusive, as required by the EJ executive order. Some residents in the communities located near the proposed mine site may feel that efforts to make them aware of a proposed mine are insufficient; that they are not provided adequate opportunity to participate in the permit process; or that if aggrieved by a mining operation, the complaint process is too challenging and intimidating. However, SMCRA regulations have established numerous opportunities to make the public aware of proposed mining and potential impacts to human health and the environment and to solicit input from interested parties. For example, notices are mailed to local officials, agencies, and utilities when a permit application is received. The permit application is available for review by the public at a place accessible to the public, in this case Claiborne County courthouse and OSMRE's Knoxville Field Office. SMCRA requires ads in the local newspaper(s) weekly for four consecutive weeks advising the public of the proposed project, where and when the application is available for review, and where to send comments and/or request a public hearing on the proposed permit. In this case, a public hearing was requested and held on December 20, 2016.

Also, an ad is placed in the local newspaper again before any blasting is to occur. Blasting notifications are mailed to everyone living within ½ mile of a mine site if blasting is proposed. Furthermore, if a NEPA document for a federal action is required, as is the case with this proposed action, the public is advised of the preparation and availability of the document in accordance with established NEPA regulations. The above described efforts to inform the public and provide opportunities for input into the permit review process is in addition to a separate but similar public participation process undertaken by the State of Tennessee under Section 402 of the Clean Water Act (NPDES). OSMRE believes these notifications are more than adequate to notify the public of proposed mining, advise the public of potential impacts, solicit input from those potentially affected, and comply with both the requirements and the spirit of the EJ executive order.

Although no statutory basis exists in SMCRA to base permitting decisions (i.e., approvals or denials) on EJ issues, proposed issuance of a federal permit requires the action agency to comply with the goals of the EJ executive order. Under the executive order, an agency must: (1) focus federal agency attention on human health and environmental conditions in EJ communities, (2) foster non-discrimination in federal programs and actions that substantially affect these populations/ communities, and (3) give the EJ populations/communities greater participation opportunities and greater access to public information on matters of public health and the environment. Under NEPA, if disproportionate impacts on minority or low-income populations are identified, a proposed action is not precluded from going forward, nor does it compel a conclusion that the action is environmentally unsatisfactory. Rather, identification of such an effect should heighten agency attention to alternatives, mitigation measures, monitoring needs, and preferences expressed by the affected communities or populations (CEQ, 1997).

As indicated earlier in this EA, a portion of the population of Claiborne County lives in households with incomes below the poverty level. When compared to state and national standards, this county has a disproportionate level of low-income areas. In this respect, the communities in the vicinity of the proposed permit area are likely typical of much of the rural, Appalachian coalfield communities as they likely include a disproportionate number of low-income households. The EA has predicted varying levels of impact, from no impacts to minor or moderate impacts, to such resources as aquatic habitats; historic/cultural resources; surface and ground water hydrology; air quality; and aesthetics (visual, background noise, and blast vibrations) at residential or public use areas. The provisions of the proposed application provide for the safety of the public. No reasonably foreseeable cumulative adverse impacts are expected to affect the surrounding communities as indicated, for example, in the cumulative hydrologic impact assessments prepared in association with this proposed permit. Should significant human health or environmental effects have been associated with the proposed issuance of this permit, these effects would likely have been disproportionately high on the nearby rural communities in this area. As only minor to moderate impacts are anticipated as a result of the proposed issuance

of this permit, the communities in this area are not anticipated to be significantly affected.

5.4.9 Health and Public Safety

As discussed in Chapter 4 Impacts, with a projected annual coal production of 209,000 tons, this would result in net annual tax revenue collection of \$209,000. This tax, as well as the sales tax revenues the local governments will realize on goods and services purchased in support of the proposed mine, may be considered as an offset to any costs (e.g. road maintenance costs) incurred by local and state governments. Other non-related impacts can occur to public roads such as logging use and oil and gas maintenance and development. Mining under Alternative A would maintain mine-related infrastructure for traffic. Cumulative impacts under Alternative B are considered less than negligible.

5.4.10 Noise

The principle noise sources related to additional mining operations include blasting, equipment operation, and coal transportation. Noise levels in the proposed permit area would be substantially reduced over time as reclamation progresses. In conjunction with other past, present, and reasonably foreseeable future land uses, the mining under Alternative A would result in negligible cumulative impacts to the region.

5.4.11 Solid and Hazardous Waste

Mining under Alternative A would produce small amounts of hazardous and solid wastes. These wastes would continue to be managed and controlled under current regulations. Future oil and gas development has the potential to cumulative add to the amount of solid and hazardous wastes produced in the region. Cumulative impacts would be kept within state and federal standards and would be minor.

5.4.12 Soils

The majority of the area to be disturbed by mining has been previously disturbed by pre- and post SMCRA surface mining. Mining under Alternative A would add to the cumulative impacts to soil resources from other surface disturbing activities such as oil and gas development. However, because oil and gas development within the proposed permit area would not be allowed until mining and reclamation is complete, those impacts would be negligible. Mining would likely increase erosion in impacted areas; however, the implementation of the Reclamation Plan under the proposed permit would reduce the likelihood of increased sedimentation outside of the Project Area. Additionally, no other surface disturbing activities would be allowed within the Project Area until postmining reclamation of the area is complete.

Therefore, the cumulative impacts on soil resources in the proposed permit area would be minor. Cumulative impacts under the Alternative B are considered less than negligible.

CHAPTER 6. COORDINATION AND CONSULTATION

6.1 AGENCIES/PERSONS CONSULTED

A coordinated multi-agency meeting, also known as a Local Interagency Working Agreement (LIWA) meeting, was held September 17, 2012. The LIWA was attended by the agencies listed below and Kopper Glo Mining, LLC. The purpose of a LIWA is to improve agency communication and coordination during the coal mine permitting process in Tennessee under the respective state and federal permitting, enforcement, and compliance reviews required by the Clean Water Act (CWA), SMCRA, and the Endangered Species Act (ESA).

- Environmental Protection Agency (EPA)
- Mine Safety & Health Administration (MSHA)
- State of Tennessee
 - TN Department of Environment and Conservation (TDEC)
 - TN Department of Transportation
 - TN Division of Natural Areas
 - TN Division of Water Resources
 - TN Historical Commission
 - TN Wildlife Resources Agency
- U.S. Army Corp of Engineers (ACOE)
- U.S. Fish and Wildlife Service (USFWS)

All county, State, and Federal agencies having legal jurisdiction, regulatory control, or coordination responsibility concerning permit issuance have been provided an opportunity to submit comments. Comments received were generally related to concerns about possible impacts to water quality, aquatic species including threatened/endangered species, residential structures (blasting and flooding), air quality, aesthetics, forest flora and fauna, public health, historic /cultural resources, and economic interests. These concerns were addressed through the OSMRE permit process, issuance of NPDES and ARAP permits by TDEC, issuance of 404 permit by ACOE, and formal consultation under section 7 with USFWS.

6.1.1 Public Comment Process

Newspaper advertisements in the Claiborne Progress Newspaper were published once a week for four consecutive weeks notifying the public of the coal mine permit application and inviting the public to comment. In conjunction with the publishing of the fourth advertisement, a 30-day period began for interested parties to submit their comments and/or request an informal conference/public hearing on the proposed coal mine application. Comments were received from the public during the comment period and a public hearing was requested. The public hearing was held in Claiborne County on November 29, 2012. Twelve individuals in attendance made statements concerning the proposed mining operation.

An informal conference site visit was requested by United Mountain Defense (UMD), Tennessee Clean Water Network, Sierra Club, Defenders of Wildlife, Statewide Organizing for Community eMpowerment (SOCM), and Tennessee Citizens for Wilderness Planning in compliance with the criteria set out in 30 CFR 773.6(c). UMD requested access to the proposed permit area for the purposes of gathering information for the conference as per 30 CFR 773.6 (c)(2)(iii). The site visit was conducted on March 5, 2014.

OSMRE and TDEC held a public meeting to discuss and review the application and plans for pending permit 3270 on December 20, 2016. The meeting was held to gather information from the public relevant to a final decision on permit 3270 in regards to the proposed Aquatic Resources Alteration Permit (ARAP) and National Pollutant Discharge Elimination System (NPDES) permit applications. OSMRE and TDEC received 141 written comments and 19 oral comments. Of the 141 written comments, 107 were from the same organization (Sierra Club) submitted as a form letter.

All comments received regarding the proposed operation and reclamation plan were given serious consideration during the technical review process and proposed alternatives. Response to comments can be found in Appendix B. Public comments included the following issues:

- Impacts to domestic wells
- Impacts to surface and ground water
- Increase pollutants
- Impacts to Threatened and Endangered species including blackside dace and Indiana bat
- Additional traffic on roadways, including the potential for collision
- Violations to the CWA requirements concerning selenium, conductivity, sulfates, manganese, TSS, and other potential pollutants
- Historic Implications – underground portal located 100 feet from a cemetery
- Tourism impacts to Tackett Creek Wildlife Management Area
- Hearing location being 70 miles from proposed permit area
- Cumulative impacts of all existing and proposed mining operations within the watershed
- Sediment and erosion in streams
- Logging and habitat loss
- Hydrologic alteration from mining and sediment basins
- Impacts to recreational uses in Valley Creek and Hurricane Creek from increased pollution loads
- Kopper Glo Mining, LLC's previous violations (17)
- Ground water impacts through multi-phase permitting processes
- Impacts to native plant species
- Request for public hearing on air quality

Table 6.1.1. List of Consultation and Coordination

| Date of Consultation/Coordination | Type of Consultation/Coordination |
|--|--|
| 05/22-23/2012 | Jurisdictional Determination Walk attended by TDEC, ACOE, EPA |
| 05/25/2012 | Letter from Kopper Glo Mining, LLC Consultant to FWS notifying them of a new permit proposal for Kopper Glo Mining, LLC, Cooper Ridge Surface Mine, Permit Application No. 3270 |
| 6/28/12 | Letter from FWS to Kopper Glo Mining, LLC commenting on 5-25-12 permit notification |
| 9/11/2012 | LIWA meeting information sent to all agencies |
| 9/11/12 | Kopper Glo Mining, LLC consultant sends copy of preliminary jurisdictional determination report and associated maps for this site to FWS |
| 9/17/2012 | LIWA meeting attended by agencies (TDEC, OSMRE, ACOE, EPA, FWS) and Kopper Glo Mining, LLC |
| 12/29/2012 | Kopper Glo Mining, LLC holds public hearing in Claiborne County regarding new permit application for 3270 (OSMRE, TDEC, and USFWS attended) |
| 1/29/13 | OSMRE sends email and hard copy letter to FWS notifying FWS of receipt of a proposed application and inviting their comment |
| 3/26/13 | FWS sends Kopper Glo Mining, LLC's aquatics consultant (Biological Systems) an email acknowledging receipt of habitat assessment of Valley Creek as well as assessments performed by another consultant working in this area |
| 4/4/13 | Kopper Glo Mining, LLC's aquatics consultant (Biological Systems) emails FWS a copy of the completed Valley Creek and Hurricane Creek blackside dace survey |
| 6/14/13 | OSMRE notifies applicant that application is administratively complete |
| 6/27/13 | OSMRE sends FWS hard copy letter notifying FWS that proposed application is administratively complete and inviting their comment |
| 7/5/13 | OSMRE sends electronic copy of 6/27/13 notification to FWS |
| 7/9/13 | OSMRE sends FWS notification of and invitation to participate in the 7/30-31/13 SMCRA pre-mine site visit |
| 7/9/13 | FWS sends OSMRE email response indicating intent to participate in the pending pre-mine site visit |
| 7/11/13 | ACOE sends OSMRE and FWS a courtesy copy of their response letter to the applicant's preliminary jurisdictional determination application for proposed 3270 permit |
| 8/23/13 | OSMRE sends copy of first technical review deficiency letter to FWS |

| | |
|----------|---|
| 8/26/13 | Kopper Glo Mining, LLC requests a more site-specific comment letter from FWS and FWS responded to the consultant's request |
| 2/6/14 | OSMRE sends copy of second technical review deficiency letter to FWS |
| 3/5/14 | Informal Conference site visit at the request of United Mountain Defense with OSMRE to proposed 3270 mine site |
| 8/25/14 | Email from FWS to OSMRE indicating they have limited information on the proposed 3270 application in their files and requesting additional information from the proposed permit application |
| 8/27/14 | OSMRE sends copy of third technical review deficiency letter to FWS |
| 8/29/14 | OSMRE copies a number of sections from the permit application onto a CD and hand delivers to FWS |
| 8/28/14 | Kopper Glo Mining, LLC indicates to FWS that the information the FWS was requesting had been provided to OSMRE and that under the LIWA agreement, OSMRE would provide to FWS. FWS acknowledged and indicated they would await info from OSMRE |
| 11/21/14 | OSMRE sends copy of fourth technical review deficiency letter to FWS |
| 12/22/14 | OSMRE receives letter from FWS providing a mine-specific species list for 9 pending proposed permit applications (including proposed permit 3270) and 42 other permits that are on OSMRE's inspectable units list |
| 3/11/15 | In response to a FWS request, OSMRE sends FWS all surface water quality / CHIA data received for mining areas in TN that OSMRE had obtained since this information was originally sent to FWS in approximately 2013 |
| 3/12/15 | FWS arranges for a site visit to look at a few of the streams that Kopper Glo Mining, LLC plans to mine through (streams that TDEC had determined were previously impacted by mining and could be restored following mining) and requesting a copy of portions of the jurisdictional determination report |
| 5/7/15 | Site visit with OSMRE, FWS, and Kopper Glo Mining, LLC |
| 11/09/16 | Public notice for joint public meeting and hearing |
| 12/20/16 | Joint public hearing held at TDEC with approximately 40 people in attendance. Representatives from TDEC, OSMRE, ACOE, and FWS were on hand to answer questions from the public on the proposed permit application |
| 12/28/16 | OSMRE sends email thanking each person who submitted written and oral comments at the joint public hearing at TDEC concerning 3270; 13 individual comments were received |
| 1/26/17 | TDEC provides the transcription of public comments from the 12/28/16 public hearing with TDEC and OSMRE |

6.1.2 US Fish and Wildlife Section 7 Process

Informal consultation with USFWS for this permit was initiated on May 25, 2012 when OSMRE notified USFWS of the new permit proposal. Formal consultation with the USFWS was initiated on November 29, 2016 with the submittal of a Biological Assessment that analyzed potential effects of the proposed project on threatened and endangered species. The resulting Biological Opinion from the USFWS was issued on February 21, 2016.

6.1.3 Tribal Consultation

No concerns were raised regarding any specific religious site, sacred site, or traditional cultural property.

6.2 PREPARERS AND PARTICIPANTS

| Name | Title |
|--------------------|-------------------------------|
| Matthew Moran | Natural Resources Specialist |
| Jonathan Middleton | Geographer |
| Elizabeth Smith | AML Program Specialist |
| Monica Wilson | Hydrologist |
| Joy Keegan | Senior Reclamation Specialist |

| Name | Title |
|---------------------|-----------------------------|
| Peggy Shute, USFWS | Assistant Field Supervisor |
| Dustin Boles, USFWS | Fish and Wildlife Biologist |
| Dave Turner, TDEC | Environmental Consultant |

Chapter 7 References

7.1 REFERENCES

- Advisory Council for Historic Preservation (ACHP). 2009. Section 106 Archaeology Guidance. Current as of January 1, 2009. Accessed online at: www.achp.gov/archguide.
- Ambrose, Skip, Christine Florian, John MacDonald, and Angel Martin. 2012. Acoustic Measurement and Assessment of Impacts of Surface Coal Mining in North Cumberland Wildlife Management Area and Emory River Tracts Conservation Easement Area, Final Report, January 31, 2012.
- American Commercial Barge Line. Safety and Sustainability. National Waterways Foundation. 2012. <http://www.bargeacbl.com/site/safety-sustain/environmental-benefits-of-barging.html>.
- Apogee Environmental & Archaeological, Inc. June, 2013. Unpublished report entitled “A Survey for the Cerulean Warbler and Golden-Winged Warbler at the Proposed Sterling and Strays Surface Mine No. 1, Claiborne County, Tennessee.”
- Aquatic Resources Management, LLC. 2010. Winter Habitat Assessment and Summer Survey for the Federally Endangered Indiana Bat (*Myotis sodalists*) at a Proposed Surface Mine Near Clairfield, Claiborne County, Tennessee (OSMRE #3225).” Unpublished report.
- Audubon Society. 2017. Website visited on Feb 2, 2017 at: http://www.audubon.org/important-bird-areas/state/tennessee?field_iba_status=All&priority=All.
- Baxter, John T. Jr. and David A. Etnier, “A Survey of Fishes and Benthic Macroinvertebrates From Tackett Creek, Claiborne Co., Tennessee, December 2, 1997.
- Beachy, Tiffany and David Buehler. Cerulean Warbler (*Dendroica cerulean*) response to Forest Management in the Cumberland Mountains of Tennessee, Annual Report 2005.
- Biological Systems Consultants, Inc. 2012. Kopper Glo Fuel, Inc., Straight Creek and Rock Creek 2102 Fall Benthic Assessment, Claiborne County, TN BSC # 212044F.
- Biological Systems Consultants, Inc. 2013. Apollo Fuels, Inc., Sterling Mine – OSMRE #3264, Indiana Bat (*Myotis sodalis*) Mist Netting, Acoustical Monitoring and Winter Habitat Assessment BSC # 213061F/ Final Report.
- Copperhead Environmental Consulting, 2011. Bat Survey for a Proposed Mining Operation on Davis Creek Mine No. 5, OSMRE Permit # 3218, Campbell County, Tennessee.
- Council on Environmental Quality. 1997. Environmental Justice, Guidance Under the National Environmental Policy Act. <http://ceq.eh.doe.gov/nepa/regs/ej/ej.pdf>.

- English, Lloyd M. and Yi Luo. 2001. Study of Fugitive Dust and Fumes. West Virginia University.
- EPA Facility Layout Information on Greenhouse Gases Tool (FLIGHT). 2014.
<https://ghgdata.epa.gov/ghgp/main.do>.
- EPA GHG Equivalencies Calculator - Calculations and References. EPA. 2015.
<https://www.epa.gov/energy/ghg-equivalencies-calculator-calculations-and-references>.
- Etnier, D. A., 1989. Assessment of Fish Populations, Benthic Macroinvertebrates and Habitat Quality in the Straight Creek Watershed, Claiborne County, Tennessee. Information from report obtained through access to TN DNA database.
- Kopper Glo Mining, LLC, Cooper Ridge Surface Mine, Permit Application No. 3270. Available at OSMRE, Knoxville, TN.
- Multi-Resolution Land Characteristics Consortium, National Land Cover Database 2001 (NLCD 2001),
http://www.mrlc.gov/mrlc2k_nlcd.asp.
- Nabelek, I. V., 1985, Noise study for Rock Creek watershed lands unsuitable for mining petition evaluation: Prepared for OSMRE by University of Tennessee, Department of Audiology and Speech Pathology.
- National Audubon Society, Important Bird Area Program,
<http://iba.audubon.org/iba/stateIndex.do?state=US-TN> , 2004.
- Paleontology Portal. Discussion of paleontological and geological resources in eastern Tennessee.
http://paleoportal.org/index.php?globalnav=time_space§ionnav=state&name=Tennessee.
- PEDCO Environmental, Inc. 1984. Assessment of impacts on the surface coal mine industry resulting from possible changes to PSD and ambient air quality standards.
- Presidential Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (February 11, 1994).
<http://www.nonoise.org/library/execorders/eo-12898.htm>.
- Rosenberg, Kenneth V., et al. 2000. An Atlas of Cerulean Warbler Populations, Final Report to USFWS: 1997-2000 Breeding Seasons. Cornell Lab.
- Sencindiver, John, et. al. 2001. Soil Health of Mountaintop Removal Mines in Southern West Virginia, Revised Project Report. Division of Plant and Soil Sciences.
- Southeast Regional Climate Center. 2016. Historical Climate Summaries for Tennessee. Available at:
http://www.sercc.com/climateinfo/historical/historical_tn.html.

- Tennessee Department of Environment and Conservation. 2011. Quality System Standard Operating Procedures for Macroinvertebrate Stream Surveys. Available at: <https://www.tn.gov/assets/entities/environment/attachments/bugsop11.pdf>
- Tennessee Department of Environment and Conservation. 2017. Notice of Determination for Kopper Glo Mining, LLC, Cooper Ridge Surface Mine Phase 1, NPDES Permit TN0069736.
- Tennessee Valley Authority. 1981. Rapid Restoration of Biological Productivity to Coal Surface Mines: Annual Biological Monitoring Report. Division of Land and Forest Resources, Norris, TN.
- Tennessee Valley Authority. 2002. Braden Mountain Surface Mine, Campbell and Scott Counties, Tennessee. Draft Environmental Assessment.
- Tennessee Wildlife Resources Agency (TWRA). 2009. Climate Change and Potential Impacts to Wildlife in Tennessee. Accessed online at: <http://www.tn.gov/twra/pdfs/tnclimatechange.pdf>.
- Tennessee Wildlife Resources Agency (TWRA). 2014. Tennessee Wildlife Resources Agency Strategic Plan 2014-2020.
- Tennessee Wildlife Resources Agency (TWRA). 2015a. Frogs of Tennessee. Accessed online February 1, 2017 at: <http://www.tn.gov/twra/article/frogs-of-tennessee>.
- Tennessee Wildlife Resources Agency (TWRA). 2015b. Salamanders of Tennessee. Accessed online February 1, 2017 at: <http://www.tn.gov/twra/article/salamanders-of-tennessee>.
- Tennessee Wildlife Resources Agency (TWRA). 2015c. Tennessee State Wildlife Action Plan. Accessed online February 1, 2017 at: <http://www.tnswap.com/>.
- U.S. Census Bureau. 2017. Data for Tennessee /Claiborne County. Accessed online February 3, 2017 at: www.census.gov.
- U.S. Department of Agriculture, Forest Service. 2013. Forest Inventory and Analysis Factsheet Tennessee 2004. Accessed at <http://srsfia2.fs.fed.us/states/tennessee.shtml>, on October 31, 2013.
- U.S. Department of the Interior, Office of Surface Mining, Cumulative Hydrologic Impact Assessments for Kopper Glo Mining, LLC, Cooper Ridge Surface Mine, Permit Application No. 3270.
- U.S. Department of the Interior, Office of Surface Mining. 1986. Rock Creek Watershed, Tennessee Petition Evaluation Document/Environmental Impact Statement OSMRE-EIS-22 (Draft).
- U.S. Department of the Interior, Office of Surface Mining. 1985. Comprehensive Impacts of Permit Decisions under the Tennessee Federal Program OSMRE-EIS-18.

- U.S. Department of the Interior, Office of Surface Mining. 2002a. Comparative Study of Structure Response to Coal Mine Blasting – Non Traditional Structures. Aimone Martin & Associates.
- U.S. Department of the Interior, Office of Surface Mining. 2002b. Impact of Blasting On Domestic Wells. Daniel B. Stephens & Associates, Inc.
- U.S. Department of the Interior, Office of Surface Mining. 2017. Appalachian Regional Reforestation Initiative Forestry Reclamation Approach. Available at:
<https://arri.osmre.gov/FRA/FRApproach.shtm>.
- U.S. Energy Information Administration. Diesel vs. Gasoline GHG Emissions Guidelines. 2012. Available at: <https://nnsa.energy.gov/sites/default/files/nnsa/08-14-multiplefiles/DOE%202012.pdf>.
- U.S. Energy Information Administration. State Carbon Dioxide Emissions. 2017. Available at:
<http://www.eia.gov/environment/emissions/state/>.
- U.S. Environmental Protection Agency. 1983. Supplement No. 14 for compilation of air pollution emission factors: 3d ed., Research Triangle Park, North Carolina.
- U.S. Environmental Protection Agency. 2010. Currently Designated Nonattainment Areas for All Criteria Pollutants, January 6, 2010. Available at:
<http://www.epa.gov/oar/oaqps/greenbk/ancl.html>.
- U.S. Fish and Wildlife Service. 2017. Birds of Conservation Concern. Accessed online February 2, 2017 at: <https://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>.
- Wilson, Charles, et al. 1956. Pennsylvanian Geology of the Cumberland Plateau. Available at:
https://www.tn.gov/assets/entities/environment/attachments/geology_pennsylvanian-geology-cp.pdf.

Appendix A. TDEC NPDES Permit

Appendix B. Response to Comments

Appendix C. Surface Mining Greenhouse Gas Emissions Quantification

Appendix D. USFWS Biological Opinion

Appendix E. OSMRE CHIA

Appendix F. TDEC Air Pollution Control Board Operating Permit