

Western Kentucky Minerals
Daviess County, Kentucky
Joes Run Mine Site
(830-0092, Amend. #3)

ALTERNATIVES ANALYSIS

I. INTRODUCTION

The purpose of the proposed Joes Run mine is to recover coal from properties owned and/or leased by Western Kentucky Minerals, Inc. and sell this resource to local and regional utilities. The proposed action is needed to meet the energy demands of the United States, as well as to stimulate the local economy. Western Kentucky Minerals must do this in a manner that returns a reasonable profit on investments in land and mineral rights, site development, infrastructure, and equipment while being environmentally responsible and complying with regulatory requirements. Clean Water Act Section 404(b)(1) requires that all reasonable alternatives be considered for projects that impact Jurisdictional Waters of the United States. As discussed in federal guidelines established for this regulation (45 FR 85344), an alternative is considered practicable if it may be implemented considering environmental impact, cost, existing technology, and logistics as they relate to the project's purpose. An alternative is considered reasonable if it is practicable and feasible from a common sense technical or economic standpoint. The applicant first considered all alternatives, then eliminated those deemed non-practicable. Reasonable alternatives were then selected from the remaining practicable alternatives; the Preferred Alternate was then chosen from the practicable alternatives once baseline data for potential jurisdictional waters had been collected and reviewed. This document will demonstrate there are no practical offsite options for mine site development, the selected mining method is the only one practicable for the proposed mine site, and that the preferred mine configuration is the most reasonable choice.

II. NON-PRACTICABLE ALTERNATIVES

A. OFF-SITE

Alternate Sites

Use of alternate mine sites was eliminated for several reasons, most significantly relating to environmental impact, public safety, and economics. Most significant is the general rarity of mineable coal reserves in Daviess County. As underlying geology is out of the applicant's

control and is the primary driver for mine site selection, a limited pool of potential sites exists. The potential sites were evaluated by exploratory geological core sampling, and low extraction ratios and substandard coal quality excluded several. Of the remaining sites, those other than the proposed Joes Run site were significantly farther from the Yellow Banks River Terminal on the Ohio River and from Owensboro Municipal Utilities (the proposed site is only 10 miles from this facility). Thus alternate sites would expose the public to more heavy truck traffic on public roads and potentially more emissions of fugitive dust and exhaust gases.

However, the primary consideration was the availability of surface and coal rights at Joes Run. The proposed permit area is an amendment (#3) to existing DNR permit 830-0092, and while possessing good quality coal and favorable recovery ratios, the area has only recently become available for lease by Western Kentucky Minerals. Thus, coal can be extracted from this site while utilizing existing, permitted mine infrastructure and limiting surface disturbance to the current watershed.

B. ON-SITE

Alternate Mining Methods

Mining method decisions were based on geologic conditions, economic feasibility, miner safety, public safety, and potential ecological impact. Underground mining was considered but rejected due to seam thicknesses of only 24"-40" in the Lewisport seam, 20"-32" in the upper Whiteash seam, 8"-12" in the Whiteash #1, 12"-18" in the Whitesh #2, and 30"-38" in the Leadcreek seam; seam thickness generally needs to average 42' for underground mining to be economically feasible. Additionally, inadequate overburden cover (less than 120 feet) exists for establishment of a competent mine adit roof. This would result in unsafe conditions for miners and potentially would lead to mine adit collapse and surface subsidence. Subsidence likely would have deleterious effects on streams and wetlands above the mine area; dewatering or significant disturbance of local hydrology could be seen as water left jurisdictional waters through fractures in the overburden and entered mine voids below.

Auger-highwall mining was considered but eliminated due to potential impacts to adjacent landowners and resulting economic concerns. To prevent surface subsidence, auger holes would have to be placed such that coal recovery could only be 50%, approximately half the

recovery provided by surface mining. Additionally, the amount of surface disturbance required to use this method only is equivalent to that of surface mining in low-relief areas.

III. PRACTICABLE ALTERNATIVES CONSIDERED

No-Action Alternative

The no-action alternative for the project was found to be unacceptable as it would not allow Western Kentucky Minerals to recover coal at the Joes Run mine and deliver it to the marketplace. The company projects an \$39 million return from coal sales over the mine's ten year lifespan; given the capital investment in obtaining property and mineral rights for the area, not allowing development of the mine would place an unreasonable financial burden on the company. The local economy also would be adversely impacted by the loss of coal production. The project would extend employment for forty-five high-paying positions at the site and extend employment for fourteen positions at the existing barge loading facility, as well as trucker positions for transport, and three employees at the test laboratory. The average wage of the mine (\$60,000 per year) nearly doubles the median personal income in the county, and is 25% higher than the median household income. A total estimated \$4.4 million in coal severance taxes and \$400,000 in property and income taxes over the four year life of the mine, would be lost to county, state, and federal collections if the applicant did not develop the site. A final consideration is the existence of contracts with several energy partners. Owensboro Municipal Utilities is expecting deliveries of coal from the Joes Run mine. In addition to loss of revenue to Western Kentucky Minerals, electric power customers potentially face an increase in rates if these providers must find alternate sources of coal.

Impacts: None

Criteria for Exclusion: Does not meet project plan and purpose

IV. PREFERRED ALTERNATIVE AND CONCLUSION

The mining method proposed for the Joes Run Mine has been in use in Daviess County for over thirty years. An alternative to the conventional variable cut area surface mining method, it will consist of developing a series of open pits approximately sequentially in the project area being mined. Prior to disturbing individual watersheds to be mined, sediment control structures and diversion ditches are constructed to control all surface water runoff from the area to be affected.

A box cut open pit is initially excavated to allow mining equipment access to the coal to be recovered. Overburden material from subsequent open pits is placed directly into the previously developed adjacent open pit by cast blasting, dozing or hauling with mobile equipment, and direct casting with a dragline. The pits advance through the permitted project area until all recoverable coal has been uncovered and recovered. The strip mining of as many as five different coal seams can be accomplished in one pit, with different seams blended to meet contract specifications; this gives the applicant the ability to adjust coal quality to suit the needs of different facilities. Mining will begin in an area where the top seam of coal is 20' deep, and follow the seam's dip through the permit area. As mining progresses, the overburden material placed in open pits where coal has been removed is graded to approximate original premining contour by dozers and other units of mobile equipment. As mining begins at the site, employees and equipment will be moved to the Joes Run Mine and production will increase as needed. Once final reclamation grade is established, topsoil is distributed over the area and liming, fertilizing, seeding, and mulching activities are completed. Once vegetation cover is established to stabilize the individual reclaimed watersheds, final stream channels, hydraulic structures, and riparian zones are established.

Surface mining activities will begin at the northernmost point of the permit area, and proceed to the southwest. Site preparation is scheduled to begin in 2013, with mining expected to begin in 2014 and continue until 2018; reclamation activities are then expected to continue until 2022. (See Exhibit 1).

Impacts: Mining utilizing Configuration 1 would impact approximately 132 acres of land surface. Within this area, 13 stream reaches would be impacted, totaling 10,998 linear feet. Three wetlands of Cowardin PFO and PEM classifications would be directly impacted, totaling 0.888 acres. Please refer to Tables 1 and 2 for more detailed information.

Benefits: Meets project plan and purpose, allowing extraction of 1.0 million tons of coal, which will produce approximately 1.8 billion kWh of energy for the regional power grid. Operation of facility will create a number of high-paying jobs, as well as maintain employment of several others.

Criteria for Exclusion: Significant disturbance of land surface and impacts to aquatic resources.

Table 1. Approximate Impacts to Streams from Mine Configuration 1

| Stream Type | Number Affected | Length Affected (feet) |
|--------------|-----------------|------------------------|
| Ephemeral | 8 | 2,760 |
| Intermittent | 4 | 7,016 |
| Perennial | 1 | 1,222 |
| Total: | | 10,998 |

Table 2. Impacts to Wetlands from Mine Configuration 1

| Wetland Type | Number Affected* | Acreage Affected |
|--------------|------------------|------------------|
| Forested | 1 | 0.582 |
| Emergent | 2 | 0.306 |
| Total: | | 0.888 |

The preferred Joes Run alternate was selected to maximize coal extraction efficiency while minimizing impacts to jurisdictional Waters of the U.S. Underlying geology makes it economically viable to construct the mining facility at the proposed location. In addition to geological advantages, the land and mineral rights were available for purchase, making the proposed site most viable of the locations considered. Impacts were generally similar for alternate facility locations examined, however, the proposed site was most advantageous because it would be adjacent to existing mining operations and utilize the existing infrastructure.

Streams that will be impacted on site will potentially receive significant ecological lift over existing conditions by reclamation to current regulatory standards and mitigation and restoration efforts within the project area. Most project area streams exhibit significant manipulation from previous land uses (e.g. agriculture and logging); restored channels will reflect stable, geomorphically correct streams for the proposed post-mining landforms and hydrologic conditions. Wetlands on-site are smaller, geographically (not hydrologically) isolated features, often by-products of human activities (i.e. pond construction). A more diverse, cohesive wetland block will be created during the reclamation phase of the mining operation to offset the impacts to wetlands within the permit boundary. This area will provide a larger wetland area and will provide higher ecological function and value than what is currently present on-site.

The Joes Run site is able to transport coal in the most environmentally, socially, and economically responsible manner. Public safety will be protected by minimizing heavy vehicle traffic on county roads, thereby limiting automobile encounters with coal trucks. In addition,

fugitive dust, noise and exhaust emissions associated with coal truck traffic will be reduced below *de minimis* levels in areas used by the general public. In addition, short-distance use of public roads also avoids the introduction of these potential pollutants to new geographic areas.

Coal recovery at the Joes Run mine and its delivery it to the marketplace has significant economic benefits. The local economy would retain high-quality employment for at least 5 years at the mine; it is anticipated that around 45 persons will be directly employed with an average salary of \$60,000. The facility will also ensure the continued employment of 14 positions at the existing barge loading facility, trucker positions for transport, and employees at the test laboratory. The mine would continue to significantly raise the per capita and household income, and the state and county stand to gain \$4.4 million in coal severance taxes and \$400,000 in property and income taxes over the mining phase the project. Finally, the applicant has existing contracts with Owensboro Municipal Utilities; electric power customers potentially face an increase in rates if these providers must find alternate sources of coal.

Nationally, coal represents 21% of the energy supply and is used to produce 50% of our electricity. Approximately 93% of the Kentucky's electricity comes from coal fired plants, and over 50% of the coal comes from western Kentucky. Given a yield of 1,814 kWh per ton for coal, the Joes Run Mine will produce approximately 1.8 billion kWh of electric power over its lifespan. Thus, the mine will produce enough coal to satisfy approximately 1.8% of Kentucky's annual electricity demand of 97 GWh.

Overall, the proposed facility location and mine method is believed to be the least environmentally invasive option resulting in the most cost-effective recovery of the natural resource. The facility will accomplish this while maximizing public safety and minimizing its environmental footprint.

