



The Banning/West Newton Coal Logistics Coal Refuse Pile Reclamation Project Rostraver Township, Westmoreland County, Pennsylvania

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Extended Abstract

Tetra Tech was selected by the Pennsylvania Department of Environmental Protection (PADEP) in August 2023 to prepare design plans and specifications and to obtain all required permits and authorizations for the Banning/West Newton Coal Logistics (Banning/WNCL) Coal Refuse Pile Reclamation Project. The abandoned bond forfeiture site was originally part of the Banning #4 underground mine and coal preparation facility which mined the Pittsburgh Coal Seam near the town of West Newton in Rostraver Township, Westmoreland County PA. The primary project goal is – ameliorating public health and safety hazards associated with the coal refuse pile, including unstable coarse refuse embankments of the pile and three slurry impoundments contained within. Two of the slurry impoundments are classified and permitted as jurisdictional, low-hazard dams.

Tetra Tech completed an alternatives analysis for the Banning/WNCL site in November 2022. The analysis included the evaluation of three reclamation alternatives.

1. The potential for removal of the fine coal refuse (FCR) from the site by trucking the material to a cogeneration facility for use as fuel.
2. Evaluation of several materials to stabilize and reduce the moisture content of the FCR on the site to improve the mechanical stability of the material to allow for incorporation of the material into the final grading plan for the site.
3. Evaluation of the removal of the FCR from the site by slurrying the FCR before pumping it to an adjacent abandoned underground mine for injection through boreholes.

A summary of the alternatives evaluated and the pros and cons of each is included in Table 1. Based on the work completed, Tetra Tech recommended developing a final project design based on Alternative 2, stabilizing the FCR with an imported material and reincorporating the stabilized FCR back into the final site grading plan due to a higher certainty of success. This alternative was approved by PADEP and is the basis for the current project design.

The planned reclamation strategy is to excavate the FCR and sludge contained in the slurry impoundments and mix it with appropriate amounts of coarse coal refuse (CCR) and an additive (such as Calciment, quicklime, or alkaline cogen ash) to dry and stabilize the material. Once stabilized, the admixture will be incorporated back into the pile during grading. Specific project objectives include decertifying the jurisdictional dams on the site; demolishing the remaining mine buildings from the Banning No. 4 mine; regrading the site to stable slopes, revegetating the site, mitigating acid mine drainage (AMD) to the extent practicable, and maximizing the surface area at the top of the regraded/reclaimed refuse pile to facilitate the planned future solar development.

The presentation covers the background of the project, work completed to date, and the current design and permitting status including the anticipated project construction schedule and estimated project construction cost.

Keywords: Coal refuse, slurry, reclamation

Table 1 *Banning/WNCL Coal Refuse Pile Reclamation Alternatives Considered and Pros and Cons of Each*

Subsurface Exploration and Testing of the (FCR) for Fuel Value (Alternative 1)	Pros and Cons
This alternative includes removing the FCR which has adequate BTU values to be utilized as a fuel source for one of the region's waste coal to energy cogeneration facilities.	<ul style="list-style-type: none"> • Con: Only about 1/3 of the slurry is viable as a fuel source • Con: It would be difficult to mine and segregate the good material • Con: The material is distant from the regions' waste coal cogeneration facilities, so trucking costs make use of the material uneconomical as a standalone solution • Con: Likely a long timeline to complete reclamation • Con: Would require subsidized trucking
Laboratory Analysis with Various Materials to Stabilize the FCR (Alternative 2)	Pros and Cons
This alternative includes excavating the FCR and stabilizing it with an imported material. A variety of materials were evaluated including Calciment®, NIDS (Novel Integrated Desulfurization System), Cogen Ash, Fly Ash, and Fly Ash + Portland Cement.	<ul style="list-style-type: none"> • Pro: Certain to allow for the deregulation and decertification of the permitted slurry dams (impoundments) • Pro: Would allow for the property owners wishes to be able to develop the site following reclamation • Con: Best material tested is limited in quantity available to support the project • Pro: With some additional testing, adequate quantities of an acceptable material is likely • Con: The construction time would likely be 2-4 years. • Con: The project would be more costly than Alternative 3 due to the cost and amount of material that needs to be imported to the project site
Evaluation of Slurrying of the FCR and Injecting it into an Adjacent Abandoned Mine (Alternative 3)	Pros and Cons
This alternative includes dredging the FCR from the three slurry impoundments, slurrying the material to approximately 10% solids, pumping the material to injection wells, and injecting the material into an adjacent abandoned underground coal mine.	<ul style="list-style-type: none"> • Pro: least costly alternative evaluated • Pro: Should allow for the deregulation and decertification of the permitted slurry dams (impoundments) • Pro: Would allow for the property owners wishes to be able to develop the site following reclamation • Con: Requires injection wells and pipelines to be developed on adjacent properties • Con: There is some uncertainty that the adjacent flooded abandoned underground mine would be able to accept all of the FCR in the areas identified for the injection wells. • Con: Additional injection wells may need to be drilled. • Con: Long construction timeframe: 4-5 years

References

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