

concluded that this was not a “significant issue” in the context of NEPA and as such, no actions to address this issue were included in the alternatives considered.

Comments:

The commenter supports proposed alternatives that include BMPs related to reclamation and revegetation, particularly revegetation with native species. The commenter is concerned that past revegetation practices that involved certain invasive, non-native species have already resulted in degradation to existing native plant communities and habitats throughout the region.

Response:

The lead agencies considered the many comments that were received that either supported or opposed the different actions and/or alternatives that are presented in this PEIS. The concerns relevant to the impact that invasive, non-native species can have on the environment are duly noted. However, a study commissioned by the lead agencies and discussed in Section II.A.3.c of the PEIS does not support the concern that mine revegetation practices have already degraded existing native plant communities and habitats throughout the region.

Comments:

The PEIS fails to consider the potential problems with large-scale land disturbance and the encroachment of exotic and non-native species. The potential for recolonization of reclaimed mine sites by aggressive nuisance species is extremely high.

Response:

The PEIS did examine the issue of reclamation of mountaintop mine sites and encroachment of exotic and non-native species. As discussed in Section II.A.3.c, the lead agencies commissioned a study that included a review of the use and occurrence of introduced invasive species on reclaimed mountaintop mining site. The study did not support the concern that mine revegetation practices have already degraded existing native plant communities and habitats in the region. Based on a review of the study and the applicable SMCRA regulations, the agencies concluded that this was not a “significant issue” in the context of NEPA and as such, no actions to address this issue were included in the alternatives considered.

6. Errata from the Draft Programmatic Environmental Impact Statement

The following are changes to the DPEIS to make it serve as the FPEIS. All references to paragraphs and sentences are relative to the page indicated. Subheadings are only indicated when the change is on the same page as the subheading. These changes include corrections to minor typographical errors and changes noted in the response to comments. The appendix is a continuation of the errata that includes finalized versions of technical studies that had been in draft form in the DPEIS and studies referenced in agency responses.

- *Executive Summary, page ES-3 third paragraph from the top, second and third sentences, should read:*
“Conclusions by the authors of the studies were not altered. Their conclusions in the studies do not necessarily reflect the position or view of the agencies preparing this EIS.”
- *Executive Summary, page ES-4, fourth bullet from the bottom, last sentence, should read:*
“Streams with fills generally have lower peak discharges than unmined watersheds during most low-intensity storm events; however, this phenomenon appears to reverse itself during higher-intensity events.”
- *Executive Summary, page ES-5 Table ES-1, text in the first row second column should read:*
“Maintains the regulatory programs, policies, and coordination processes, as well as actions that existed or had been initiated in 2003.”
- *Executive Summary, page ES-6 Table ES-1. Text in the second row, second column, sixth line should read:*
“OSM rules would be finalized to clarify the stream buffer zone rule and make it more consistent with SMCRA. OSM excess spoil rules would be finalized to provide for fill minimization and alternatives analysis, similar to CWA Section 404(b)(1) Guidelines.”
- *Executive Summary, page ES-7, ninth bullet should read:*
Replace the beginning of the sentence with: “Implement existing program requirements, as necessary and appropriate, to ensure that MTM/VF is carried out in full compliance with the Endangered Species Act.”
- *Section II.A, page II.A-1, block quote in the second paragraph:*
“United States” is spelled incorrectly.
- *Section II.A, page II.A-2, subsection 2, last sentence should read:*
“These cover sheets are an aid to the reader and do not necessarily reflect the conclusions of the agencies.”
- *Section II.A, page II.A-5, last line, of the second paragraph:*
delete the reference, “(see Chapter I.D.2).”
- *Section II.B, page II.B-3, Table II.B-1, text in the first row, second column should read:*
“Maintains the regulatory programs, policies, and coordination processes, as well as actions that existed or had been initiated in 2003”.
- *Section II.B, page II.B-3, Table II.B-1, text in the third row, second column, sixth line should read:*
“OSM rules would be finalized to clarify the stream buffer zone rule and make it more consistent with SMCRA. OSM excess spoil rules would be finalized to provide for fill minimization and alternatives analysis, similar to CWA Section 404(b)(1) Guidelines.”
- *Section II.B.2, page II.B-11, second bullet, should read:*
“Implement existing program requirements, as necessary and appropriate, to ensure that MTM/VF is carried out in full compliance with the Endangered Species Act.”
- *Section II.C.2, page II.C-29 subsection a.2, last sentence should read:*
“For instance, in West Virginia, the point where the stream segment changes from ephemeral to intermittent is located by a field procedure identifying groundwater levels.”

- *Section II.C.10, page II.C-87, third paragraph, next to last sentence, should read:*
“The USGS Ballard Fork study found that peak discharge from mined watersheds exceeded peak discharge from unmined watersheds when rainfall intensity was greater than 1 inch per hour.”
- *Section II.C.11, page II.C-91, this and all other references to a Biological Assessment or developing a Biological Assessment for the PEIS, should be amended with the following:*
“In the process of making a determination of effects pursuant to the Endangered Species Act, the agencies concluded that the preferred alternative would have no effects on T&E species. In coming to this conclusion, the agencies considered the entire record before them, including the fact that in this programmatic EIS, each of the actions in the action alternatives in the PEIS calls for developing certain potential measures to minimize impacts from MTM/VF activities. Each action is conceptual, preliminary, and undeveloped. The agencies have not yet determined the specific techniques or technologies that would be employed, the specific objectives and measures that would apply, or the products, practices, or standards that would result. Because parameters and directions for these actions have not been developed, evaluation of the impacts of the actions on T & E species and their designated critical habitats is not yet feasible. Thus, until development of any action would occur, there would be no effects from the possible action on specific T & E species and their critical habitats.”
- *Section II.D.2, page II.D-8, subsection c. last sentence:*
“unacceptable” is spelled incorrectly.
- *Section III.C.1, page III.C-10, first paragraph, first sentence should read:*
“Fish species present in headwater streams tend to be representative of cold water species or pioneer species adapted to live in ephemeral/intermittent streams, and are primarily sustained by a diet of invertebrates (Vannote *et al.*, 1980).”
- *Section III.C.1, page III.C-11, insert additional text after the sentence at the top of the page:*
“The areas that were studied were important in the radiation of many different fish forms (e.g., the six endemic fishes in the New River drainage). It is important to note that speciation is not a phenomenon that occurred a million, a thousand, or even one hundred years ago and then stopped. It is a dynamic event that continues to occur (Stauffer and Ferreri).”
- *Section III.C.1, page III.C-12, second to last bullet under “Biological,” should read:*
“They enhance fine organic matter transport downstream by breaking down the leaf material”
- *Section III.C.1, page III.C-17, subsection e, third paragraph, third sentence should read:*
“This lake is anticipated to be similar to ponds found in the study area.”
- *Section III.C.2, page III.C-20, last sentence, should read:*
“...may tend to limit the effect of disturbances on the downstream watersheds although the streams and ponds do not replace the structure and function of original first and second order watersheds (Wallace, B. in EPA *et al.* March 20, 2000)”
- *Section III.D.1, page III.D-3, subsection b.2:*

all references to the USGS 2002 Draft “E-point, P-point” study should instead refer to the USGS 2003 ephemeral points and perennial points study.

- *Section III.D.1, page III.D-5, subsection e, first paragraph, second sentence should read:*
“One study of the impact of valley fills on stream flows was performed by the USGS (USGS 2001c) on one stream below a valley fill site (at the toe of the valley fill) and one stream below an unmined site, and comparing one flow parameter at many streams with and without filling in the watershed.”
- *Section III.D.1, page III.D-7, subsection f.2, first paragraph, second sentence should read:*
“These changes include increases in a number of constituents and properties that are known to be associated with surface mining...”
- *Section III.D.1, page III.D-9, subsection h.1, second paragraph, last sentence should read:*
“In addition, other metrics that evaluate the diversity, evenness and degree of pollution tolerance...”
- *Section III.D.1, page III.D-15, subsection i, second paragraph, first sentence should read:*
“A study of fish communities and the responses to environmental factors...”
- *Section III.D.1.i, page III.D-17, add to the top of paragraph:*
“In 2003 the FWS collected fish in streams downstream of valley fills, where earlier water quality analysis [Appendix D] had revealed high selenium concentrations. The results demonstrated that the selenium is biologically available for uptake into the food chain, and that violations of the EPA selenium water quality criteria may result in selenium concentrations in fish that could adversely affect fish reproduction. In some cases, fish tissue concentrations were near levels believed to pose a risk to fish-eating birds. It is likely that benthic invertebrates in some of these streams would be similarly contaminated, thereby posing a risk to birds such as Louisiana waterthrush that depend upon aquatic insects as a food supply.” (January 16, 2004, letter from David Densmore, FWS, to Allyn Turner, WVDEP).
- *Section III.D.2, page III.D-19, second paragraph, last sentence should be replaced with:*
“Wallace (EPA 2000) suggested that these types of systems can be important sites of nutrient storage and uptake provided that a sufficiently vegetated littoral zone is present, and the reconstructed wetland is linked to the downstream watershed. Dr. Wallace stated that while these wetlands have value, he does not believe that these constructed wetlands replace the pre-mining streams. However, he noted, the wetlands do tend to limit the effect of disturbances on the downstream watersheds.”
- *Section III.D, page III.D-21, first paragraph, lines 7-9 delete the statement:*
“However, it is not known whether the organic matter processing that occurs in created wetlands would mimic the processing found in a natural stream system” should be deleted.
- *Section III.E.2, page III.E-3, second paragraph, second sentence should read:*
“Aluminum solubility is very low, less than 0.5 mg/L, at pH of approximately 7.”

- *Section III.E.2, page III.E-5, second paragraph, second sentence should read:*
“In most natural or unpolluted surface waters, soluble iron is either near or less than quantifiable concentrations due to its relative insoluble properties in oxidizing and water environments at pH of approximately 7.”
- *Section III.E.2, page III.E-5, third paragraph, third sentence should read:*
“In most natural or unpolluted surface waters, soluble manganese is absent due to its limited solubility in oxidizing and water environments at pH of approximately 7 similar to iron.”
- *Section III.E.2, page III.E-5, fourth paragraph, second sentence should read:*
“The presence or absence of aluminum is a direct result of pH-dependent solubility, with aluminum solubility increasing from, much less than 1 mg/L at pH of approximately 7, to greater than 100 mg/l at pH less than 3 (Stumm and Morgan 1996).”
- *Section III.E.3, page III E-6, subsection b, third paragraph, insert before the last sentence:*
“Flocculants and precipitates associated with mine drainage can cement substrates and contribute to streambed armoring.”
- *Section III.F.1, page III.F-3, second full paragraph, last sentence:*
change the word, “tress,” to “trees.”
- *Section III.F.3, page III.F-7, subsection a, second paragraph, second sentence should read:*
“This change in available habitat has resulted in an increase in the abundance of edge and grassland bird species at reclaimed mountaintop mining sites (Wood and Edwards, 2001; Canterbury, 2001).”
- *Section III.F.3, page III.F-9, subsection c, third paragraph, beginning of the first sentence should read:*
“Herptofaunal species richness and abundance...”
- *Section III.G.2, page III.G-4 Insert at the end of the last paragraph:*
“Requests for copies of the SEDCAD 4 or HEC-HMS modeling runs should be submitted in writing to OSM (SEDCAD 4) at 3 Parkway Center, Pittsburgh, PA, 15220 and to the Corps (HEC-HMS) at Pittsburgh District, US Army Corps of Engineers, ATTN: CELRP-EC-WH, 1000 Liberty Avenue, Pittsburgh, PA 15222-4186.”
- *Section III.G.2, page III.G-7, subsection b., first sentence of the last paragraph, should read:*
“During most of the recorded storms (low intensity), the peak flows (per unit area) for the unmined watershed and the cumulative watershed were greater than the mined watershed.”
- *Section III.K.4, page III.K-38, subsection a, first sentence:*
change the word “competed” to “completed.”
- *Section III.L.3:*
pages III.L-14 - III.L-17 are missing. They are reproduced in the appendix.
- *Section IV.D, page IV.D-4, first paragraph, second sentence, add following reference:*
(67 FR65083 (Oct 23, 2002))

- *Section IV.D, page IV.D-5, subsection 1.e, first paragraph, last sentence should read:* “The Federally-listed species and habitat information are summarized in Appendix F of this EIS.”
- *Section V, page V-41, insert the following two references before the third reference from the bottom:*
 “West Virginia Legislative Auditor, Performance Evaluation And Research Division. *Preliminary Performance Review. The Office of Explosives and Blasting*. PE 02-36-268. December 2002.”
 “West Virginia Legislative Auditor, Performance Evaluation And Research Division. *Preliminary Performance Review. The Office of Explosives and Blasting*. PE 03-23-298. November 2003.”
- *Appendix D:*
The Fulk 2003 study should be replaced with the final 2003 version with pagination. This study is provided in the errata continuation appendix.
- *Appendix E:*
The Handel study on the CD version of the EIS and on the website should be replaced with the March 2003 version. This study is provided in the errata continuation appendix.
- *Appendix H:*
The July 2001 USGS flooding study should be part of appendix H. This study is provided in the errata continuation appendix.

The following items are in the errata continuation appendix:

- Pages III.L-14 - III.L-17 from the DPEIS
- USFWS letter report
- USGS Water Quality in the Kanawha-New River Basin
- Handel 2003 study text final version
- Fulk 2003 study, final version with pagination
- “Amphibian utilization of sediment control structures compared to a natural vernal pool located on mine permitted areas in southern West Virginia.” Conducted for Pen Coal by R.E.I. Consultants, report dated 22 April 2000.
- “A History of the Benthic Macroinvertebrate and Water Chemistry Studies of two Long-term Monitoring Stations on Trough Fork” Conducted for Pen Coal by R.E.I. Consultants, report dated 20 June 2000.
- Weakland, Cathy, A., and Wood, Petra Bohall. “Cerulean Warbler (*Dendroica Cerulea*) Microhabitat and Landscape-level Habitat Characteristics in Southern West Virginia in Relation to Mountaintop Mining/Valley Fills”. Final Project Report. USGS Biological Resources Division and West Virginia University, Division of Forestry. December 2002.
- Selenium Workshop, April 13th, 2004 Charleston, WV. Summary
- USGS 2001 Flooding Study

**Appendix
Errata Continuation**

Pages Missing from DPEIS

III. Affected Environment and Consequences of MTM/VF

**Table III.L-5
Example MTM/VF Mine Economic Analysis
MANPOWER TABLE**

Period: Full Year

Production Days = 260 days

C.T. Per M.H.		7.25
BCY Per M.H.		108.90

Manpower				Job Description	O.B. Production	# Prod. Days	Hrs. Per Day	Total Manhours
Position	Day	Evening	Total					
25 yd. Front Shovel	1	1	2	O.B. Loading	7,500,000	260	10	5,200
210 Ton Rock Truck	3	3	6	O.B. Haulage		260	10	15,600
Fill Dozer	1	1	2	Run Fill		260	10	5,200
18 ½ yd. Backhoe	1	1	2	O.B. Loading	5,800,000	260	10	5,200
150 Ton Rock Truck	3	3	6	O.B. Haulage		260	10	15,600
Fill Dozer	1	1	2	Run Fill		260	10	5,200
16 yd. Endloader	1	1	2	O.B. Loading	4,100,000	260	10	5,200
150 Ton Rock Truck	2	2	4	O.B. Haulage		260	10	10,400
Fill Dozer	1	1	2	Run Fill		260	10	5,200
45 yd. Bull Dozer	4	4	8	Prod. Dozing	7,800,000	260	10	20,800
Development Dozer	2	2	4	Development		260	10	10,400
Reclamation Dozer	1	1	2	Reclamation		260	10	5,200
16 yd. Coal Loader	2	2	4	Coal Prep. Ldg.		260	10	10,400
9 yd. Coal Loader	2	2	4	Coal Prep. & Ldg.		260	10	10,400
Drillers	4	3	7	O.B. Drilling		260	10	18,200
Motor Grader	1	1	2	Road Maint.		260	10	5,200
Water Truck	1	1	2	Dust Control		260	10	5,200
Mechanics/Welders	2	6	8	Maintenance		260	10	20,800
P.M. Technicians	1	2	3	Maintenance		260	10	7,800
Fueler/Greaser	1	1	2	Maintenance		260	10	5,200
Blasters	6	0	6	Blasting		260	10	15,600
Blasting foreman	1	0	1	D & B Superv.		260	10	2,600
Prod. Foreman	1	1	2	Shift Superv.		260	10	5,200
Maint. Foreman	1	1	2	Maint. Superv.		260	10	5,200
Maint. Planner	1	1	2	Maint. Scheduling		260	10	5,200
Prod. Engineer	1	0	1	Engineering		260	10	2,600
Superintendent	1	0	1	General Superv.		260	10	2,600
Total	47	42	89		25,200,000			231,400

Source: Meikle & Fincham, 1999

III. Affected Environment and Consequences of MTM/VF

**Table III.L-6
Example MTM/VF Mine Economic Analysis of
Earnings Before Interest and Taxes**

Parameter	Total Project		
	\$\$	\$\$ Per BCY	\$\$ Per C.T.
Revenues	\$405,800,604	\$1.65	\$24.75
Revenues Per ton	\$24.75		
Non-Mining Costs:			
Sales Related Costs	\$59,771,560	\$0.24	\$3.65
Intercompany Royalties	\$0	\$0.00	\$0.00
Intercompany Commissions	\$4,098,996	\$0.02	\$0.25
Trucking	\$33,666,422	\$0.14	\$2.05
Other Transportation Costs	\$9,837,593	\$0.04	\$0.60
Preparation Costs	\$12,752,441	\$0.05	\$0.78
Subtotal	\$120,127,012	\$0.49	\$7.33
Net Realization	\$285,673,592	\$1.16	\$17.42
Indirect Costs:			
Overhead	\$8,996,465	\$0.04	\$0.55
Reclamation	\$2,459,394	\$0.01	\$0.15
Subtotal	\$11,455,859	\$0.05	\$0.70
Mining Costs:			
Labor	\$83,956,796	\$0.34	\$5.12
Supplies	\$112,056,241	\$0.45	\$6.83
Subtotal	\$196,013,037	\$0.80	\$11.95
Cash Margin	\$78,204,696	\$0.32	\$4.77
Cash Margin Per Ton	\$4.77		
Cash Cost Per Ton	\$19.98		
Direct D.D. & A.	\$51,691,246	\$0.21	\$3.15
Indirect D.D. & A.	\$0	\$0.00	\$0.00
Subtotal	\$51,691,246	\$0.21	\$3.15
Earnings Before Interest & Taxes	\$26,513,450	\$0.11	\$1.62

Source: Meikle & Fincham, 1999

III. Affected Environment and Consequences of MTM/VF

Table III.L-7
Example MTM/VF Mine Economic Analysis
CAPITAL INVESTMENT STATISTICS (\$millions)

Parameter	Initial Inv. Year 0	Year #1	Year #2	Year #3	Year #4	Year #5	Year #6	Year #7	Year #8	Year #9	Year #10	Year #11
E.B.I.T.	\$0.00	\$2.43	\$2.57	\$2.64	\$2.79	\$2.82	\$1.45	\$1.55	\$1.70	\$5.22	\$3.33	\$0.00
Taxes @ 30%	\$0.00	\$0.73	\$0.77	\$0.79	\$0.84	\$0.85	\$0.44	\$0.47	\$0.51	\$1.57	\$1.00	\$0.00
Commissions	\$0.00	\$0.42	\$0.42	\$0.42	\$0.42	\$0.42	\$0.42	\$0.42	\$0.42	\$0.42	\$0.32	\$0.00
Taxes on Comm.	\$0.00	\$0.13	\$0.13	\$0.13	\$0.13	\$0.13	\$0.13	\$0.13	\$0.13	\$0.13	\$0.10	\$0.00
Intercompany Royalty	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Taxes on Intercompany	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Tax Savings Depl.	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Net Income	\$0.00	\$2.09	\$2.14	\$2.14	\$2.25	\$2.27	\$1.31	\$1.38	\$1.49	\$3.95	\$2.56	\$0.00
(Add) DD&P	\$0.00	\$5.29	\$5.29	\$5.29	\$5.22	\$5.23	\$6.53	\$6.53	\$6.48	\$2.97	\$2.85	\$0.00
(Less) CapEx	\$3.86	\$37.06	\$0.48	\$0.23	\$0.48	\$2.78	\$10.66	\$1.70	\$0.00	\$2.55	\$0.00	(\$6.65)
Net Cash Flow	(\$3.86)	(\$29.77)	\$6.90	\$7.21	\$6.99	\$4.72	(\$2.82)	\$6.21	\$7.97	\$4.37	\$5.41	\$6.65

N.P.V. @ 5%	\$7.45
N.P.V. @ 8%	\$2.26
N.P.V. @ 10%	(\$0.52)
I.R.R.	9.60%
Payback Period	7.56 yrs

Cash Flows 1 - 11	
E.B.I.T.	\$26.51
Net Inc.	\$21.43
Net Cash	\$19.98

Source: Meikle & Fincham, 1999

III. Affected Environment and Consequences of MTM/VF

**Table III.L-8
Individual Taxes
By Total Mine Life Cost and Cost Per Ton of Coal**

Taxes	Total Mine Life Cost	Cost Per Ton of Coal
Personal Property Tax	\$3,132,574	\$0.19 per ton
Worker's Compensation	\$5,559,085	\$0.34 per ton
Matching FICA	\$3,097,378	\$0.19 per ton
Unmined Mineral Tax	\$1,173,000	\$0.07 per ton
Franchise Tax	\$504,390	\$0.03 per ton
Severance Tax	\$20,290,033	\$1.24 per ton
Black Lung Tax	\$8,747,264	\$0.53 per ton
Federal Reclamation Tax	\$5,566,431	\$0.34 per ton
WV Special Assessment	\$819,798	\$0.05 per ton
Federal & State Income Tax	\$9,183,734	\$0.56 per ton
TOTAL	\$58,073,684	\$3.54 per ton

Individual taxes and tax rates vary between states in the study area. It is predicted that total taxes would be \$4,189,994 less if this same operation were conducted in Kentucky, and \$12,187,134 less if it were conducted in Virginia.

4. Mining Method Considerations

Selection of the appropriate mining method(s) for a given site is a complicated, iterative process during the mine feasibility evaluation and planning stages. Choices are typically driven by the desire to maximize coal recovery with the least expensive mining method that is practical for a given coal seam. This section summarizes the basic considerations for mine method selection.

a. Mine Method Selection Factors

The two basic options in mine method selection are surface and underground mining, or a combination of the two. For surface operations, contour, area, and mountaintop removal methods are available individually or in combination, and room and pillar and/or longwall mining are available for underground operations. The primary factors used for deciding between the individual methods are summarized in Table III.L-9.