UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

November 2, 2010

Colonel Keith A. Landry
District Engineer
Louisville District Corps of Engineers
Attn: Lee Anne Devine (Regulatory Branch)
OP-FN, Room 752
P.O. Box 59
Louisville, Kentucky 40201-0059

Subject: Public Notice LRL-2010-825, CAM Mining, LLC – Tom's Branch Surface Mine
Floyd County, Kentucky
Kentucky Division of Mine Permits (KDMP) 836-0355

Dear Colonel Landry:

The U.S. Environmental Protection Agency (EPA) Region 4, has completed a preliminary review of the Public Notice and accompanying Clean Water Act (CWA) Section 404 permit application and Fill Placement Optimization Protocol (FPOP) submittal associated with the U.S. Army Corps of Engineers (Corps) Louisville District Individual Permit application (LRL-2010-825) submitted by CAM Mining, LLC (CAM; KDMP 836-0355). The proposed 615-acre Tom's Branch surface coal mine will impact 10,005 linear feet (lf) of Tom's Branch of Buffalo Creek and unnamed intermittent and ephemeral tributaries of Tom's Branch of Buffalo Creek in Floyd County, Kentucky.

The proposed project was originally being reviewed in accordance with the Enhanced Coordination Procedures (ECP) for surface coal mining applications as detailed in the June 11, 2009, *Memorandum of Understanding among the U.S. Department of Army, U.S. Department of Interior and the U.S. Environmental Protection Agency Implementing the Interagency Action Plan on Appalachian Surface Coal Mining*. However, the project was administratively withdrawn by the Corps in March 2010 due to the applicant's failure to respond to the Corps' request for additional information. The project application was revised on July 9, 2010, re-submitted to the Corps, and a new Public Notice was issued on September 24, 2010.

EPA does not believe there is sufficient information available to conduct an adequate review of the proposed project. This letter presents EPA's preliminary concerns about the project, but also contains several recommended sources of information we believe the applicant should provide to the Corps in order to complete an appropriate analysis under CWA 404(b)(1).

The applicant is proposing to construct one valley fill (hollow fill (HF) 1) and sediment pond impacting almost 2 miles (10,005 lf) of jurisdictional waters in the Tom's Branch watershed, including 1,520 lf and 1,655 lf of perennial and intermittent reaches, respectively, of

Tom's Branch; and 6,000 lf of ephemeral tributaries to Tom's Branch. Tom's Branch is a direct tributary to Buffalo Creek, which flows into John's Creek, which subsequently flows into the Corps of Engineers Dewey Lake, a flood control and recreation reservoir several miles downstream of the proposed project. Although the applicant has revised the project consistent with the Kentucky Department of Natural Resources (KDNR) Fill Placement Optimization Protocol (FPOP), total project impacts were reduced by only 25 linear feet.

EPA's review is intended to ensure that the proposed project meets the requirements of the CWA. The CWA Section 404(b)(1) Guidelines (Guidelines) promulgated in regulations by EPA in conjunction with the Secretary of the Army establish the substantive environmental standards applied in the review of projects proposing to discharge dredged or fill material into waters of the United States. The Guidelines establish a sequence of review requiring: (1) an evaluation of all practicable alternatives that meet the project's basic purpose to ensure that only the least environmentally damaging alternative is permitted; (2) taking all appropriate and practicable steps to minimize potential adverse impacts; and (3) compensation for all remaining unavoidable impacts to aquatic resources. In addition, the Guidelines require that no discharge may be permitted that would cause or contribute to significant degradation of the waters of the United States.

Scientific literature has increasingly recognized the relationship between discharges from surface coal mining operations and downstream water quality impairments. A 2004 Kentucky Department for Environmental Protection, Division of Water, Water Quality Branch study, "Effects of Surface Mining and Residential Land Use on Headwater Stream Biotic Integrity in the Eastern Kentucky Coalfield Region" found that the wholesale loss of mayflies at mined sites indicated that these organisms are especially sensitive to coal mine drainage. Dissolved solids emanating from hollow fills are a primary cause of biological impairment because of their severe impact to mayflies (a key component of headwater stream communities) and other sensitive taxa. A 2005 published study, "Evaluation of Ionic Contribution to the Toxicity of a Coal-Mine Effluent Using *Ceriodaphnia dubia*" by Kennedy, et al. linked impairment of aquatic life to elevated total dissolved solids (TDS) levels. A 2008 published study, "Downstream effects of mountaintop coal mining: comparing biological conditions using family- and genus-level macroinvertebrate bioassessment tools" by Pond, et al. found evidence indicating that mining activities have subtle to severe impacts on aquatic life and the biological conditions of a stream.

Alternatives Analysis – 40 CFR Section 230.10(a)

The Guidelines at 40 CFR Section 230.10(a) provide that no discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge that would have less adverse impact on the aquatic ecosystem. The Guidelines require that no discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem. When evaluating this project, key factual considerations in the context of surface coal mining include: the adequacy of the alternatives analysis submitted; the number of valley fills; the number, length, and quality of streams to be impacted; and the number, size, and location of sediment ponds.

The signatory agencies to the July 2010 Memorandum of Understanding (MOU) among the U.S. Office of Surface Mining Reclamation and Enforcement (OSM), EPA, the Corps, and KDNR, regarding the *Coordination of the Evaluation of Excess Fill Placement by Proposed Surface Coal Mining Operations in the Commonwealth of Kentucky*, agree that the Fill Placement Optimization Protocol (FPOP) currently required by KDNR under Reclamation Advisory Memorandum (RAM) 145, represents the "best technology currently available," as defined in Kentucky Administrative Regulations. Use of this protocol *may* result in minimizing the extent of jurisdictional waters impacted by excess spoil fills. However, adherence to this protocol does not in itself ensure compliance with the Guidelines.

The applicant states that two separate disposal areas (HF 1 and HF 2) were considered during the application of the FPOP. HF 1, the preferred storage disposal area, is located in Tom's Branch watershed. HF 2 is located in John's Branch, a tributary to Buffalo Creek located upstream of the confluence of Tom's Branch and Buffalo Creek, and immediately adjacent to the proposed project. There is at least one active mine (KDMP 898-0779) operated by CAM that appears to be within one-half mile of the proposed project, and one pending proposed project (KDMP 898-0779 A2) that is currently being reviewed under the ECP process.

We are currently working with our mining engineer to review the FPOP evaluation for this project in more detail. Based on the information provided in the FPOP, we are unable at this time to determine whether the applicant has identified the least environmentally damaging practicable alternative (LEDPA) as the preferred alternative, and request at a minimum the following information to complete our review:

- Stream habitat assessment data sheets and water quality data (including specific conductance) for the tributaries proposed to be impacted by this alternative, Ecological Integrity Index (EII) and Ecological Integrity Unit (EIU) calculations for HF 2, and appropriate engineering calculations as required by RAM 145 justifying why HF 2 was not selected as the optimized excess spoil disposal area.
- Photographs and Jurisdictional Determination forms for HF 2.
- A copy of the current Mine Sequence Plan.
- A statement explaining more clearly why the applicant did not consider the proposed project in conjunction with the adjacent and/or contiguous mine permits operated by CAM as a "total operation" pursuant to RAM 145.
- Quantification of the total coal reserves that would be sterilized using the contour mining method and better justify why this method is not a practicable alternative to preferred alternative (i.e., area mining).

Compliance with Other Environmental Standards – 40 CFR Section 230.10(b) and Significant Degradation of the Aquatic Ecosystem – 40 CFR Section 230.10(c)

The 404(b)(1) Guidelines, 40 CFR Section 230.10(b), provides that no discharge may be permitted that would cause or contribute to a violation of any applicable water quality standard, violate any applicable toxic effluent standard, or jeopardize the existence of threatened or endangered species. When evaluating this proposed surface coal mining project, key factual considerations include: the pre-mining water quality and potential for water quality impacts

downstream of proposed sediment ponds, including but not limited to impacts from TDS and specific conductance (SC); pH; turbidity; and selenium, manganese, and other metals. These parameters may cause impacts to biotic integrity and to threatened and endangered aquatic species.

As mentioned above, recent studies have shown that there is a direct correlation between stream impairment and discharge of TDS/SC due to coal mining and coal processing activities. A 2010 published study, "Mountaintop Mining Consequences" by Palmer, et al. shows that ecological losses downstream of coal mining valley fills are associated with increased levels of TDS/specific conductance, sulfates, and selenium. A 2010 published study by Pond, "Patterns of *Ephemeroptera* taxa loss in Appalachian headwater streams (Kentucky, USA)," links specific conductance as the most strongly correlated factor to *Ephemeroptera* abundance in streams impacted by mining and residential development. A draft report by EPA, "The Effects of Mountaintop Mines and Valley Fills on Aquatic Ecosystems of the Central Appalachian Coalfields," found effects that include resource loss, water quality impairment, and adverse effects on aquatic resources. Finally, another draft report by EPA, "A Field-based Aquatic Life Benchmark for Conductivity in Central Appalachian Streams," recognizes stream-life impacts associated with specific conductance.

In addition to these studies, the KDOW's own 2008 list of impaired waters, provided to EPA under Section 303(d) of the CWA, identified 1,199 stream miles in the Upper Kentucky River watershed, 487 stream miles in the Upper Cumberland River watershed, and 780 stream miles in the Big Sandy/Little Sandy/Tygarts Creek watershed as impaired with coal mining identified as a suspected source. The 2008 *Integrated Report to Congress on Water Quality in Kentucky* (305(b) Report), Table 3.3.1-4, ranks TDS as the 7th leading cause of pollution to Kentucky rivers and streams and ranks SC as 17th.

The proposed project would impact almost 2 miles of streams, including the permanent loss of 9,208 lf of relatively high quality streams located in Tom's Branch watershed. Tom's Branch is a direct tributary to Buffalo Creek, which flows into the Corps of Engineers Dewey Lake. Buffalo Creek is listed as impaired for siltation/sedimentation with coal mining listed as a suspected source; Dewey Lake is listed as impaired for suspended solids, with coal mining listed as a suspected source. Based on our preliminary review of the available water quality data, we believe that the proposed project may end up causing or contributing to exceedances of water quality standards in streams that are already known to be impacted by mining-related (and other) causes. Furthermore, the KPDES General Permit previously issued for this project does not set numeric limits for parameters of concern, such as SC, which scientific literature has demonstrated have significant effects on downstream biological communities.

The 404(b)(1) Guidelines, 40 CFR Section 230.10(c) provides that no discharge shall be permitted that will cause or contribute to significant degradation of the waters of the United States. When evaluating surface coal mining projects such as this proposal, key factual considerations include: the cumulative effects of the proposed mine in consideration of previous and reasonably foreseeable future impacts; a watershed assessment of total length of streams to be impacted and/or total area of valley fills in waters of the United States; the extent of high-value or high quality streams to be impacted, including extent of impacts to critical headwater streams and/or perennial reaches; the geographic location of the proposed mine; and an

assessment of impacts based on a watershed-scale evaluation (preferably at the scale of a 12- or 14-digit hydrologic unit code (HUC)) of stream quality, water temperature, and stream diversity, among other factors.

The applicant assessed the streams in January 2008, and again in May 2008, at the request of KDNR. All stream reaches were assessed for habitat and SC as part of the Eastern Kentucky Stream Assessment Protocol. Specific conductance is relatively low in the intermittent (142 µS/cm) and perennial (163 µS/cm) reaches of Tom's Branch, indicating that these reaches may still be meeting their designated uses and may support a diverse assemblage of macroinvertebrates. Specific conductance is significantly higher in all 6,000 lf of ephemeral stream (500 µS/cm), resulting in a greatly reduced EII score of 0.1. However, we have some concerns regarding the applicant's assessment methodology, and we believe that these data may not be representative of the individual tributaries proposed for impact. For example, it appears that all 10,005 lf of stream were assigned an identical habitat assessment score (i.e., 99 out of a total of 200 on EPA's Rapid Bioassessment Protocol high gradient habitat assessment data sheets). Similarly, all 6,000 lf of ephemeral stream were assigned the same SC value (500 µS/cm).

In order to ensure that we have the most complete data set available for our review, we request that the applicant provide all water quality data associated with the proposed project that have been collected. These data include baseline, during-mining, and post-mining water quality monitoring data collected in support of applications for or under requirements of the Surface Mining Control and Reclamation Act (SMCRA) or Kentucky Pollutant Discharge Elimination System (KPDES) permits for this project. To help characterize the likely water quality conditions after commencement of mining activities, EPA also requests data collected under any and all adjacent or nearby active or pending surface coal mining permits owned and/or operated by CAM, including but not limited to KDMP 898-0779, 898-0779 A1, and 898-0779 A2.

Avoidance and Minimization of Impacts – 40 CFR Section 230.10(d) and Compensatory Mitigation for Losses of Aquatic Resources – 40 CFR Section 230.91

The 404(b)(1) Guidelines, 40 CFR Section 230.10(d), provide that no discharge shall be permitted unless appropriate and practicable steps have been taken which will minimize potential adverse environmental impacts of the discharge on the aquatic ecosystem. When evaluating this proposed surface coal mining project in light of this provision, key factual considerations include: the total length of streams impacted (temporarily and/or permanently) by the proposed mining activities; the quality of those streams determined via analysis of both stream structure and stream function; and the total length of waters affected between the toe of valley fills and sediment ponds. The 404(b)(1) Guidelines, 40 CFR Section 230.91, establish standards and criteria for the use of all types of compensatory mitigation to offset unavoidable impacts to waters of the United States. The Guidelines further specify that the District Engineer may determine a permit may not be issued if the proposed mitigation does not fully compensate for impacts consistent with the requirements of EPA and the Corps' compensatory mitigation regulations.[1]

[1] An accurate review based on the Section 404(b)(1) Guidelines and an appropriate permit decision is predicated on proper identification of jurisdictional waters and correct assessment of their condition and hydrologic permanence.

The applicant is proposing to restore the reach of Tom's Branch temporarily impacted by the sediment pond footprint and associated sediment corridor, and make an in-lieu fee (ILF) payment totaling $1,250,424 to the Kentucky Stream and Wetland Mitigation Program. We have noted a number of inconsistencies in the permit application, FPOP, jurisdictional determination (JD) forms, EII and EIU calculations, and compensatory mitigation plan that lead us to believe the proposed mitigation may not adequately compensate for the proposed impacts. For example, proposed ILF payment was calculated using the In-lieu Fee Compensatory Mitigation Calculator Version 2002.8, and therefore does not reflect the fee increase imposed on all permit applications submitted after November 10, 2009.

We request that the applicant provide at a minimum the following information so that we may better evaluate the appropriateness of the proposed mitigation plan:

- JD forms, habitat assessment forms, and EII and EIU calculations *for each individual tributary* impacted by the proposed project, including three additional tributaries in Tom's Branch near the face of HF 1 which were identified on the Buffalo Creek Watershed/Cumulative Impact map submitted with the permit application, but were not included in the project's total impacts or in the mitigation plan.
- Copies of color photographs taken during the May 30, 2008, site assessment.
- Watershed drainage areas associated with each perennial, intermittent, and ephemeral stream reach proposed for impact, including the three additional tributaries described above.
- Any and all water quality data collected in each of the affected tributaries.

Determination of Cumulative Effects on the Aquatic Ecosystem – 40 CFR Section 230.11(g)

The 404(b)(1) Guidelines, 40 CFR Section 230.11(g), provide that cumulative effects attributable to the proposed project should be predicted to the extent practicable, including the collective effects of any number of individual discharges, whether by the applicant alone or when combined with others. The Corps is required to determine the potential short-term or long-term effects of the proposed discharge on the aquatic environment. EPA understands that consortia of applicants have provided the Corps with cumulative impacts assessments (CIAs) for some eight-digit HUCs, and that additional CIAs have been done for some affected smaller watersheds (e.g., 12- or 14-digit HUCs). EPA further understands that these CIAs are being used by the Corps to support permit decisions.

We are particularly concerned that the geographic scope of the assessments (the entire HUC-8 watershed) conducted to date may be too large spatially to provide a meaningful analysis of impacts from mining in the affected watershed. In addition, we are concerned that these assessments have not adequately addressed the potentially significant human health impacts that surface coal mining projects may have on surrounding communities, which are typically low-income communities. These potential human health effects have not been addressed in the three

---

As described in the July 30, 2010, memo from EPA Assistant Administrator Peter S. Silva and Assistant Secretary of the Army (Civil Works) Jo-Ellen Darcy, these determinations, and the evaluation of the effects of the proposed discharge, are to be made based on indicators of both stream structure and function.

CIAs completed to date (i.e., North Fork Kentucky River, Middle Fork Kentucky River, and Upper Levisa Fork 8-digit HUCs), and we believe additional analyses concerning the potential for disproportionately high adverse effects on low-income populations in the area would be appropriate.

A CIA for the Lower Levisa Fork watershed (the 8-digit HUC in which the proposed project is located) has not been completed at this time; according to the applicant, the CIA was still on-going as of April 28, 2010, and the assessment would be submitted to the Corps upon completion. EPA requests a copy of this CIA upon completion to enable us to complete our review of the proposed project.

The requirements of Executive Order (E.O.) 12898 and the Presidential Memorandum accompanying it must be addressed appropriately in federal actions—such as federal permitting under Section 404 of the CWA and compliance with the National Environmental Policy Act (NEPA). Under E.O. 12898, "each Federal agency shall make achieving environmental justice (EJ) part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations." EPA encourages the Corps to include EJ as part of its review of this permit application. Nearby residences may be affected by changes in ground water (drinking water wells), particulate matter, noise, vibrations, and increased traffic.

Lastly, EPA requests that the Corps provide us with the appropriate NEPA analysis that supports the proposed permit decision. EPA recommends that the NEPA analysis consider the cumulative impacts to the watershed from this proposed project taking into account historic water quality, habitat, and human health impacts. Considering that the scope of impacts of the proposed project (nearly two miles of stream loss and one valley fill) and our concerns with the current mitigation proposal, it is not clear that the current mitigation would not reduce the potentially significant impacts to support a Finding of No Significant Impact. Therefore, EPA believes it may be appropriate for you to prepare an Environmental Impact Statement (EIS) concerning this proposed project.

Our NEPA staff are willing to review and comment on draft NEPA documents that are prepared prior to the permit decision.

Conclusion

As summarized above, we request additional information so that we can complete our review and provide additional project specific comments and recommendations. Based on the information available, EPA believes that the project as currently proposed may not comply with the Section 404(b)(1) Guidelines. EPA finds this project may have substantial and unacceptable adverse impacts on aquatic resources of national importance. This letter follows the field-level procedures outlined in the August 1992 Memorandum of Agreement between the EPA and the Department of the Army, Part IV, paragraph 3(a) regarding Section 404(q) of the Clean Water Act.

I want to thank you and your staff for your cooperation and willingness to address our issues. We look forward to working closely with you and the applicant to resolve the concerns outlined above. If you have any questions, please call me at (404) 562-9470 or Stephanie Fulton of my staff at (404) 562-9413.

Sincerely,

James D. Giattina
Director
Water Protection Division

cc: Jim Townsend, Louisville District, Louisville, KY
Lee Anne Devine, Louisville District, Louisville, KY
David Baldridge, Louisville District, Sassafras, KY
Joe Blackburn, Office of Surface Mining, Lexington, KY
Lee Andrews, U.S. Fish and Wildlife Service, Frankfort, KY
Carl Campbell, Kentucky Department of Natural Resources, Frankfort, KY
Bruce Scott, Kentucky Department of Environmental Protection, Frankfort, KY
Sandy Gruzesky, Kentucky Division of Water, Frankfort, KY

To:

Jim Townsend: james.m.townsend@usace.army.mil
Lee Anne Devine: lee.anne.devine@usace.army.mil
David Baldridge: david.e.baldridge@usace.army.mil
Joe Blackburn: jblackburn@osmre.gov
Lee Andrews: lee.andrews@fws.gov
Carl Campbell: carl.campbell@ky.gov
Bruce Scott: bruce.scott@ky.gov
Sandy Gruzesky: sandy.gruzesky@ky.gov