UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

MAR 05 2010

Ginger Mullins, Chief
Regulatory Branch
Huntington District
U.S. Army Corps of Engineers
502 Eighth Street
Huntington, West Virginia 25701

Re: PN 2007-89-OHR; Argus Energy WV, LLC; Wiley Branch Surface Mine Logan and Wayne Counties, West Virginia

Dear Ms. Mullins:

The proposed Wiley Branch Surface Mine project was originally Public Noticed for comments on May 15, 2009. The U.S. Environmental Protection Agency provided comments in response to the public notice on June 12, 2009. In those comments EPA expressed concerns regarding the alternatives analysis, impacts to the aquatic ecosystem by causing or contributing to significant degradation and/or to excursions of water quality standards, including the narrative, and the mitigation plan. Argus provided a response to comments to the Corps which EPA received in October, 2009. On January 27, 2010 EPA met with representatives from Argus Energy, the Huntington District, and the West Virginia Department of Environmental Protection to discuss the project. During that meeting Argus presented an approach to address the Agency's water quality/significant degradation concerns. As part of that approach the company proposes an adaptive management plan for conductivity including the use of wetland cells to treat or address the higher levels of TDS, TSS and conductivity. The applicant has provided several documents and sources of information in support of their approach.

EPA has reviewed all of the material provided by Argus and we offer comments regarding the material and is provided here as an attachment. In summary, the EPA does not believe that the proposed wetland cells will be effective as a treatment system to address any trends in higher levels of conductivity. EPA Region III's recommended approach for projects where one valley fill or concurrently constructed valley fills like Wiley Branch have been proposed has been to develop two separate threshold values, one which triggers implementation of the adaptive management plan and a second that requires enhanced mitigation to increase the assimilative capacity of the receiving streams to allow for the increased discharge of total dissolved solids. Monitoring should be conducted and trigger values should be set at both the outfalls of the ponds and the proposed AMP1 station. Consistent with recommendations EPA has made for other projects, we recommend that trigger values at the ponds be 300 µS/cm and at AMP1 a trigger value of 500 µS/cm. These values are lower than those proposed by the applicant but we believe they are more effective in providing protection from excursions of the narrative water quality standard and will prevent significant degradation. The plan provided by

the applicant is essentially a reactive management plan and does not allow for steps to be taken during construction to address or abate increases in conductivity and only offers one trigger.

While we certainly appreciate the efforts undertaken by the company to address our concerns, we are not confident the proposed approach will effectively prevent or address likely impacts to the aquatic ecosystem from the placement of fill into waters of the U.S. We offer the attached comments to more clearly describe our concerns. EPA is willing to meet again to discuss any of the technical comments and concerns. We request the opportunity to review the raw data used to support the findings presented in the "Effects of conductivity on the WV-SCI and Mayflies: A statistical analysis of long-term data" presentation. Thank you for the opportunity to provide comments for the Wiley Branch Surface Mine. If you have any questions or concerns please contact Ms. Jessica Martinsen at 215-814-5144 or by email at martinsen.jessica@epa.gov.

Sincerely,

Jessica L Martinsen

for Jeffrey D. Lapp, Associate Director
Office of Environmental Programs

Technical Comments for PN 2007-89-OHR; Wiley Branch Surface Mine

EPA comments on the *Response to Comments* Document

- The Benthic Report provided by the applicant for the Wiley Branch surface mine indicated that several taxa existed in the LTEF-1 which indicated that the channel likely exhibits perennial flow. August 2006 sampling yielded two (2) taxa, *Cordulegaster* and *Ephemera* that have 2-3 year life cycles. *Cordulegaster* (and other potential perennial indicators) was also documented by the applicant in August 2006 for the smallest stream (LTEF-3). EPA's preference is to rely on long term indicators, such as watershed size and the resident biota, to determine whether a stream is perennial, intermittent or ephemeral. Flow alone can be variable and an inaccurate indicator due to drought or short term low flow conditions. This approach is supported by scientific literature, by WVDEP's water quality standards definition of intermittent streams and by other states' methods that use biological indicators (e.g. Ohio). Several of the taxa reported by the applicant have life histories requiring flowing water greater than 6 months and are thus suggesting that the channels are perennial.
- The published Pond et al. article found many taxa were extirpated or severely reduced downstream of MTM operations (e.g., see Appendix 3 in EPA study). The EPA authors do mention significant "shifts" in composition but actually point to the WVSCI scores (and the more accurate GLIMPSS scores) as indicating "violations of narrative standards". In the 2008 303(d) report, WVDEP said "A "shift" in the benthic macroinvertebrate community of a stream can constitute biological impairment pursuant to 47CSR2 – 3.2.i, and the WVSCI (recognized as a "best science method" in the MTM/VF EIS) provides a sound scientific basis for assessment." Many of the sites that are in the EPA study have been listed on the WVDEP 303(d) list as impaired. EPA's position is in agreement with WVDEP monitoring and assessment methods and their regulatory actions.
- EPA recognizes that streams can be impaired (at low conductivity) by other stressors. The East Fork Twelvepole is a relatively large stream with many sources of freshwater dilution and some largely intact tributaries. EPA does not believe that the use of East Fork Twelvepole is an appropriate example to compare to EPA's data and findings regarding the adverse effects of elevated conductivity on aquatic life uses. The applicant intends to mine through and fill headwater streams and should consider conditions in nearby mined headwater streams, to provide relevant data and comparisons to EPA's findings. EPA is willing to review any datasets that correctly partition natural variability due to stream size and season, that appropriately identify and isolate non-mining related stressors such as residences, and are relevant to the effects of mining on headwater streams.
- Wetlands do not replace headwater mountain stream functions. Biota in constructed wetlands will not resemble the lost communities that exist within the areas of valley fills. Other functions will also differ. In addition, groin ditches as a form of stream creation is not supported by EPA as an acceptable form of mitigation. EPA is concerned that any sediment ditches that are proposed to be used by the applicant for stream mitigation do not resemble the biological,

hydrological, or chemical integrity of the lost resources and may actually increase the export of poor quality water offsite to downstream resources. Therefore, the permit must be conditioned to require specific success criteria that ensures that the stream channels meet the basic designated use for aquatic life and therefore a minimum of achieving a 68 on the WVSCI score and has good water quality to support such a biological community.

EPA Comments: Copley Trace Functional Assessment & Water Quality Analysis

- The company provided this report to show that converted sediment ponds, that may have some characteristics of wetlands, can effectively remove dissolved ions from solution, leading to a reduction in conductivity at the outflow. The report documents a one-time sample event and indicates that conductivity decreases from 985 uS/cm (upslope of the pond) to 500 uS/cm (downslope of the pond). The TDS data and conductivity data do not show the same reduction in dissolved ions. The lab analysis indicates TDS decreases from 1070 mg/l (upslope) to 1030 mg/l (downslope). We believe the TDS and supporting anion and cation data are more accurate. An outflow TDS measurement of 1030 mg/l equates to roughly a 1400 uS/cm conductivity. The evidence from this single sample event does not support a conclusion that the wetland will be effective for treating elevated TDS and reducing conductivity. EPA is unaware of any geochemical mechanism in wetland cells that would effectively remove TDS, we remain skeptical that wetlands can substantially reduce TDS or conductivity. We welcome further information and scientific literature sources to review if the applicant is aware of such a mechanism.
- While it is true that wetlands have proven effective to improve water quality, as stated above we have not seen enough supporting evidence for the use of wetlands to treat for conductivity. EPA is only aware of a limited set of options to address and or treat for conductivity such as dilution from freshwater sources (which means protection of undisturbed forest and geology that will deliver clean surface and groundwater), evaporation and distillation, or reverse osmosis-type technology.
- The applicant also provided EPA with links to studies on pollutant removal from stormwater ponds, ditches, swales, etc. These links are found at The Center for Watershed Protection website. One of the Center's publications (*Technical Note #95 from Watershed Protection Techniques. 2(4): 515-520)* reported that out of 123 BMP performance studies (nationwide), only 13% of those actually measured TDS. Furthermore, in several of the studies found in the National Pollutant Removal Performance Database Technical Brief (Version 3.0), the data actually showed increases in TDS in the outflow or no reductions in TDS at outflows.
- Whatever pollutant removal technology is proposed to control TDS at this site, its effectiveness must be demonstrated.

EPA Comments on the Adaptive Management Plan (AMP)

- The AMP proposes trigger values for conductivity based on more than 10 years of data from 2 stations in East Fork Twelvepole Creek. The plan fails to account for direct conductivity loading into the headwater tributaries (e.g., LTEF-1) that will be partially filled or mined through; the aquatic life uses in these streams must be protected as well, and protective trigger points should be in place for them in the AMP. Sampling locations should be added in the headwater streams if possible.
- Any onsite stream creation mitigation should also carry appropriate conductivity trigger points.

  EPA cannot support using a WVSCI score of 60.6 as an impairment threshold. The WVSCI range of 60.6 – 68 is considered by West Virginia DEP to be a "gray result" and is reported on the Section 303(d) list as insufficient data to conclude that the use is either fully supporting or not fully supporting. A WVSCI score of 68 (representing the 5th percentile of WVDEP reference sites) is considered fully supporting. Therefore, use of any biological threshold should be set at the value of 68.
- The proposal to use 2 Standard Deviations (SD) of the mean calculated from the more than 10 years of data is problematic. Because of the wide differences in spring vs. fall flows, the data must (at a minimum) be partitioned into these distinct time categories for calculation of SD of the mean. This would then allow for 2 trigger points (spring vs. fall). EPA is also concerned that some portion of the variability over the ten years is due to mining activity and is not all natural variability. The applicant should supply trends data for the % of the watershed that has been mined over the same 10 year period for each sampling point.
- For determining trends, an option would be to flow-weight conductivity values using the following formula:

$$\bar{C} = \frac{\sum_{i=1}^{\text{No. of days in month}} (C)_i Q_i}{\sum_{i=1}^{\text{No. of days in month}} Q_i}, \qquad (1)$$

where

$\bar{C}$ = discharge-weighted dissolved solids or chloride concentration, or specific conductance, in milligrams per liter or microsiemens per centimeter at 25 degrees Celsius, as appropriate;

$(C)_i$ = instantaneous constituent concentration or property, in units as above; and

Q_i = daily mean discharge, in cubic feet per second.

Source: USGS, found at http://pubs.usgs.gov/wri/wri95-4288/pdf/wri95-4288.pdf

- Another problem with using the 2 SD approach, and the proposed AMP is that it could still result in impairment of the aquatic life use. EPA believes the trigger values the applicant has proposed will not be protective of the designated aquatic life use and prevent significant degradation of the aquatic ecosystem.

EPA Comments on the presentation by E. Kirk and R. Maggard on "Effects of conductivity on the WV-SCI and Mayflies: A statistical analysis of long-term data".

EPA 's review of the presentation suggests several areas of concern related to the suggested conclusions. The statistical analysis and data quality considerations suggest that more information exchange is necessary. EPA is willing to further review the raw data sets and further discuss the effects of mining on headwater streams from other possible stressors and non-mining related disturbances.