



January 8, 2018

Dr. Brian Costello  
WBASD Superintendent  
730 S. Main Street  
Wilkes-Barre, PA 18711

Subject: Phase II Environmental Site Assessment Review/Reuse Recommendations  
Pagnotti Property, Maffett and South Main Streets,  
Plains Township, PA

Dear Dr. Costello:

Tetra Tech, Inc. (Tetra Tech) has completed the third party review of the Phase II Environmental Site Assessment (ESA) prepared by Borton-Lawson (BL) in accordance with our December 28, 2017 proposal to you.

The objectives of the work described below are to provide a professional opinion regarding:

- 1) Recommendations presented in the Phase II ESA, and
- 2) The adequacy of the anticipated engineered cap to reduce the risk associated with exposure to contaminants identified in the Phase II ESA to end users if the site is developed as a school.

The specific activities Tetra Tech completed to achieve the above objectives are described below, along with limitations in our evaluation and general recommendations for items to consider as the project proceeds. However, in short, based on the information provided, we are of the opinion that the recommendations presented in the Phase II ESA are reasonable and that construction of a cap system is a routine method for eliminating the direct contact exposure pathway to impacted soil by future occupants of the Site.

## **I. Document Review**

BL provided Tetra Tech the following documents:

- Phase I ESA<sup>1</sup>
- Phase II ESA<sup>2</sup>
- Addendum 10<sup>3</sup> to the reclamation plan.
- Correspondence between Plains Township<sup>4</sup> and the Pennsylvania Department of Environmental Protection (PADEP)<sup>5</sup>.

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<sup>1</sup> Borton-Lawson. 2014. Phase I Environmental Assessment Report – Pagnotti/Loree Property, Plains Township, Luzerne County, Pennsylvania. November.

<sup>2</sup> Borton-Lawson. 2017. Phase II Environmental Assessment. Pagnotti Property. Letter Report from Dan Nealon of Borton-Lawson to Gary Salijko of Apollo Group, Inc. Dated October 11, 2017.

<sup>3</sup> Addendum 10. Jeddo-Highland Coal Company Addendum 10 to SMP # 40840206, Dated May 27, 2010.

<sup>4</sup> Plains Township letter to PADEP regarding Surface Mining Permit # 40840206. From Ronald Filippin Chairperson of the Plains Township Board of Commissioners. Letter dated August 23, 2013.

<sup>5</sup> PADEP response letter to Plains Township inquiry of SMP # 40840206. From Thomas Flannery of PADEP's Pottsville District Office to Ronald Filippin Chairperson of the Plains Township Board of Commissioners.

Given the compressed schedule, Tetra Tech completed a limited review of these documents sufficient to meet our objectives. We have not independently confirmed the accuracy of the data or other information presented in the documents.

In addition to reviewing the documents, Tetra Tech contacted, via telephone on January 3, 2017, Mr. Eric Supey, Environmental Cleanup Program Manager, PADEP Northeast Region and Mr. Mike Menginhi, PADEP Pottsville District Mining Office Manager. The purpose of those discussions was to confirm our understanding of regulatory status of the site.

Tetra Tech understands that coal ash had been deposited at the Site through 2005. The Phase II ESA was completed to evaluate the potential for other environmental impacts that could impact development of the Site by WBASD. During the Phase II ESA, a total of 47 soil samples were collected from 41 soil borings and analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), polychlorinated biphenyl compounds (PCBs) and the eight RCRA metals. The depth of the borings varied up to a maximum of 24 feet below ground surface.

No obvious evidence of contamination was reportedly detected during completion of the soil borings and groundwater was not encountered. VOCs, SVOCs and PCBs were reportedly not detected in any of the samples in a concentration exceeding the laboratory reporting limit. Various metals were detected; however, arsenic and cadmium were the only metals detected in a concentration exceeding the PADEP Land Recycling Act (Act 2) Residential, Direct Contact Medium Specific Concentration (MSC). Concentrations of arsenic exceeded the Residential Direct Contact MSC in 31 of the 47 samples, and 8 of 47 samples exceeded the Non Residential Direct Contact MSC. It should be noted that arsenic is a naturally occurring metal that can also be found in native soils throughout Pennsylvania in concentrations that exceed the MSCs.

The Phase II ESA recommendations, and Tetra Tech's opinions are summarized below:

- 1) The coal ash placed at the Site is considered a waste and as such cannot be mitigated within the Act 2 Program and regulations at 25 PA Code 250. The native soils could be addressed through Act 2, however the volume of ash waste at the site makes its removal impractical. Therefore, since the coal ash cannot be addressed via Act 2, the liability protections afforded by the Act cannot be conveyed. Tetra Tech concurs with these findings from the Phase II ESA based on our knowledge of the regulations and discussions with the PADEP personnel mentioned above. Our general recommendations for minimizing potential environmental liabilities are presented later in this letter.
- 2) The Phase II ESA stated, "The best approach to moving forward would a best management practice in the form of the placement of an engineering control or cap." Tetra Tech concurs with this approach for pathway elimination as described below in the risk evaluation. Using pavement, buildings and clean soil cover is a typical method for elimination of the direct contact pathway. Our general recommendations for the cap and construction are presented following the risk evaluation.

## **II. Risk Evaluation**

While the Site is ineligible Act 2 closure because coal ash is considered a waste material, elements of the risk assessment approach in Act 2 provide standard practice guidance for supporting risk-based decision-making for the Site. The basis of human health risk to environmental media, such as soil, is the

identification of a potential health hazard and a point of exposure for a human receptor. US Environmental Protection Agency (EPA) Risk Assessment Guidance for Superfund (RAGS) is the “gold standard” for risk assessment methods, and Act 2 relies heavily on EPA RAGS. Although the Site is not being remediated under Act 2, we recommend generally following those rules and guidance because they present a clearly defined and defensible manner to control risk.

The key steps of chemical risk assessment are:

- Hazard Assessment (Are there chemicals in soil that could result in adverse health effects if one were exposed to them?);
- Exposure Assessment (Is there an opportunity for people to be exposed to these chemicals?);
- Toxicity Assessment (What are potential health effects at a given level of exposure); and
- Risk Characterization (Are there possible health effects for people on the Site for the level of exposure possible to the chemicals in Site soil?)

### **Hazard Assessment**

The Phase II ESA reported risk-based exceedances of Act 2 Residential Direct Contact MSCs for arsenic and cadmium in soil samples throughout the soil column, apparently including coal ash materials. The MSCs assume frequent contact with soils for many years (i.e., 250 days per year for 30 years for residential assumptions and 180 days per year for 25 years for nonresidential assumptions). While these are very conservative assumptions for the exposure potential with coal ash material and impacted soil at the Site, according to the regulations, direct contact with arsenic and cadmium could result in adverse health effects if one were exposed to them.

It must be noted the SMP Reclamation Plan for the Site requires a minimum 4 foot soil cover over coal ash materials. The Phase I ESA indicates the majority of the Site has undergone reclamation, but that there are areas where an additional foot of soil cover needs to be spread to meet the prescribed minimum 4 foot cover. While the current “cover” may be sufficient to meet the mining regulations, it may not be sufficient to meet Act 2 regulations and guidance.

### **Exposure Assessment**

Under current Site conditions, there is soil cover of at least 3 feet and in many places 4 feet to 10 feet over coal ash materials. Under proposed future conditions of redevelopment as school property, features of this redevelopment could be considered an engineering control measure for exposure pathway elimination. As such, Tetra Tech agrees with the Phase II ESA conclusion that “(t)he best approach moving forward would be a best management practice in the form of the placement of an engineering control or cap. Across the subject site, the cap would be comprised of buildings, asphalt, concrete and topsoil and grass.” The engineering control or cap is consistent with 25 PA Code §250.404 “Pathway identification and elimination” and would provide “engineering...controls in eliminating pathways.” Therefore, there would be no pathways for direct contact with subsurface coal materials in areas where future buildings, asphalt, concrete, topsoil, and grass are completed and maintained.

During redevelopment, workers could contact coal ash materials. Therefore, soil management and health and safety planning is recommended during Site redevelopment activities.

### **Toxicity Assessment**

A Toxicity Assessment is not necessary because exposure to potentially toxic materials in soil will be eliminated with the engineering control or cap.

### **Risk Characterization**

Upon completion of Site redevelopment, there will be pathway elimination for direct contact with soil for typical future Site users (e.g., students, teachers, workers who do not engage in soil excavation activities).

Therefore, there will be no direct exposure with coal ash materials for the typical school receptor and no unacceptable risks with soil.

### **III. General Conclusions and Recommendations**

As described above, Tetra Tech concurs with the recommendations presented in the Phase II ESA Report that the site is not eligible for the liability protections afforded by Act 2 due to the coal waste. Furthermore, based on the information reviewed, we are of the opinion that the relevant exposure pathway to future users is direct contact. This pathway may be eliminated by constructing and maintaining an effective cover system.

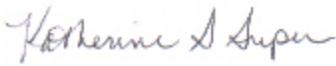
Tetra Tech is currently unaware of the details of the acquisition or the specific development plans. However, based on what is known we recommend WBASD consider the following as planning continues:

- 1) *Liability Protection* – Unfortunately, Act 2 is not applicable to mine related wastes, and the mining regulations do not provide a clear pathway for an innocent land owner to receive PADEP relief of liability protection. As the acquisition moves forward, Tetra Tech recommends that careful attention is paid to adequately transferring permit responsibilities, including the implementation of reclamation plans, etc. Close coordination with PADEP is strongly recommended. It may be prudent to consider placing relevant deed restrictions/notices to ensure future compliance.
- 2) *Site Cover* – Tetra Tech assumes the site cover system will consist of hard surfaces, buildings, and up to two feet of clean soil, as defined by the PADEP Management of Fill Policy. A site cover system is a routine approach to eliminating the direct contact exposure pathway under Act 2. It is important to note that clean fill as defined in the PADEP Management of Fill Policy may not be the same as “cover material” referred to in the mining regulations. The extent of the cover system will likely be dictated by the actual area to be developed and occupied. In unoccupied areas, complying with the mine reclamation plan may be sufficient.
- 3) *Excavation and Soil Management Plan* – It is likely that Site soils and coal ash/refuse excavated during construction may remain on-site provided they are ultimately placed under suitable cover unless there is evidence of hazardous substances or petroleum. To the extent possible, excavated soils should not be taken off-site. However, if soils are taken off-site, care must be taken to ensure compliance with applicable mining and solid waste regulations. Fill materials brought on-site should meet the requirements for clean fill described in the PADEP Management of Fill Policy. Tetra Tech recommends that a Soils Management Plan be prepared to describe how materials are to be handled, both during construction and for excavation activities after redevelopment. A component of the Soils Management Plan also can address contingencies for unexpected conditions encountered and worker safety. Often a Soils Management Plan is a requirement of the construction storm water management permit.
- 4) *Vapor Intrusion (VI) Pathway Elimination* – The VOC data reported in the Phase II ESA do not indicate that VI is a relevant exposure pathway. However, in light of the fact that we do not know where and how structures are to be built, and that elevated radon levels are common for the Wilkes Barre area, Tetra Tech recommends that the VI pathway be considered during the design of any structures.

**IV. Closing**

We appreciate the opportunity to support WBASD on this project. I can be reached at telephone (412) 921-8887 or [katherine.super@tetratech.com](mailto:katherine.super@tetratech.com) if you have any questions. My fax number is 412-921-4040.

Sincerely,

A handwritten signature in blue ink that reads "Katherine A. Super".

Katherine Super, DABT  
Senior Toxicologist and Risk Assessment Manager  
Tetra Tech, Inc.  
Pittsburgh, PA

cc: Ray Wendolowski, Esq.