BETTY KESTER ALLIANCE FOR A HEALTHY FUTURE

Citizen Action to Restore, Protect, and Sustainably Develop our Communities

(Joseph M. Murphy, Founder, 570-668-9009)

Dr. Elizabeth Irvin-Barnwell
Agency for Toxic Substances and Disease Registry
4770 Buford Hwy NE
Atlanta, GA 30341
By Email

Dear Dr. Irvin-Barnwell:

We are writing to express our very serious concerns regarding the conduct of *Air & Water Exposure Assessment* (*Exposure Assessment)* being conducted by Equity Environmental Engineering, LLC (EEE). *The Exposure Assessment* is a critical part of the CDC-funded multi-project study aimed at determining: (1) the prevalence of Polycythemia Vera (PV) and related Myeloproliferative Neoplasm's (MPNs) (2) factors including exposures to environmental contaminants that may contribute to the significantly elevated frequency of PV in the Tamaqua-McAdoo-Hazleton area. The Agency for Toxic Substances and Disease Registry (ATDR) directs the overall study.

As you are aware, EEE received a contract of more than $500,000 to conduct the assessment more than a year ago. In its choice of EEE, ATSDR/CDC judged that the firm was qualified and committed to carry out the objectives tasks described in the Statement of Work (SOW). However, we have concluded after an extensive review that EEE's efforts and plans submitted thus far do not meet the terms of its contract and will jeopardize the entire project. Based on flaws and errors contained in its proposals we are also left wondering if EEE has sufficient scientific expertise to competently provide the critical Air and Water Assessment, due in less than 9 months.

- EEE's proposed protocol and sampling plan contain serious gaps and deficiencies.
- EEE's protocol for environmental sampling fails to meet critical provisions of the SOW.
- EEE relies heavily on Pennsylvania Department of Environmental Protection (DEP) sampling results that were not meant to be used in health assessments; for example, the DEP sampling omits critical sources and exposure pathways, including potential exposures to fugitive coal ash in air and in dust accumulations.

Unless corrected these problems are likely to jeopardize any attempt to find potential links between environmental contamination and PV and related medical conditions. Although findings of completed studies are sometimes inconclusive, design flaws that predictably lead to inconclusive outcomes must be corrected before the studies are carried

out. Without a major change of direction these problems will damage the scientific credibility of the program and erode public trust in CDC, ATSDR, and DEP.

These issues are compounded by ATSDR's failure to establish a process to allow the public and its scientific advisors[1] to review and comment on draft reports. A public review process is essential to ensure that comments from the scientific advisory team and the public are considered and addressed prior to finalization. Secondly, it is essential for the public and its advisors to know the history of any changes made. The public deserves a high degree of transparency. The $8.5 million for the studies came from tax payer money. Third, the project enlisted thousands of community members for medical screening, residential testing, and surveys. Moreover, the Air and Water Assessment was initiated at the request of the Community Action Committee (CAC) representing the public.

Based on our findings, we urge ATSDR to require EEE to correct the serious problems and omissions contained in its protocol. These problems are detailed in Attachment 1. Without major revisions, EEE cannot meet its contractual obligations and ATSDR cannot produce a scientifically credible analysis that is needed to evaluate potential links between the PV cancer cluster and environmental factors.

Thank you for your consideration.

Sincerely,

Joe Murphy, President, The Betty Kester Alliance for a Healthy Future
Henry S. Cole, Ph.D., Alliance Science Advisor, Henry S. Cole & Associates, Inc.
Bob Gadinski, Alliance Science Advisor
John Mellow, Alliance Science Advisor
Bryce Payne, Alliance Science Advisor
Jim Leber, Alliance Science Advisor

Attachment

CCs:
Senator Robert Casey
Senator Arlen Specter (Ret.)
Senator John Blake
Senator John Yudichak
Senator Dave Argall
Representative Jerry Knowles
Representative Doyle Heffley
Kathleen Sibelius, Secretary of Health & Human Services,
Thomas Frieden, Director, Centers for Disease Control and Prevention
Christopher Portier, PhD, Director ATSDR / NCEH
Dr. Steve Dearwent, ATSDR

[1] Scientific advisors for Betty Kester Alliance that prepared this report include Dr. Henry S. Cole (environmental earth scientist, President Henry S. Cole & Associates, Inc.), Robert Gadinski (hydrogeologist), John Mellow (hydrogeologist), Dr. Bryce Payne (environmental scientist with expertise in soils and coal ash).

CCs: to Alliance members and supporters:

Carole and Charles Martienssen, John and Carol Kolbush, Irene and Frank Genther, Jay and Claire Hoffman, Fran Yacapsin, Cathy Miorelli, Dr. Peter Baddick, Tamaqua Mayor, Chris Morrison, Ruthann Kester Weinsteiger, Merle and Linda Wertman, Lawrence Levin, Esq., Thomas Gowen, Esq. , Dr. Kate Applebaum, Dr. Richard Clapp, Sue Sturgis, Christine Verdier, Debbie Herb.

Attachment 1

Evaluation of EEE's Air and Water Assessment Sampling Protocol

---

1.0 Exposure sampling deficiencies: It appears that EEE is using DEP's residential testing program as a template/basis for generating their sampling program. This approach is inherently flawed because DEP's program was not designed for research and discovery. According to the former P-Vera project manager (ATSDR) and a former DEP employee and member of the Residential Testing Program design team, DEP's work was essentially developed to detect any current environmental exposures that were considered "abnormal " or that required immediate response. Their project was the "canary in the coal mine" that would alert the agency to any sample locations that were at "action level" status. Consider also:

- DEP's residential sampling program does not meet the sampling required by the Statement of Work (SOW) for the Air & Water Exposure Assessment. Thus EEE's nearly exclusive reliance on DEP studies will not meet the conditions required by the SOW.

- While DEP's testing for exceedances of standards might help to identify the needs for remediation, the results should not be used to establish potential links between toxins and disease or as a template for additional sampling and analysis.

- The approach endorsed by EEE as well as ATSDR is that sampling and analysis will not be conducted if there are no regulatory defined action levels or standards. We remind all parties that a scientific analysis is different from a regulatory analysis and that regulatory levels are often based on factors other than health effects including remedial feasibility. EEE's confusion is reflected in the title of its field sampling plan, "For the *Remedial Investigation* of Soil and Groundwater."

  Secondly, even qualitative information can be used (a) to identify the presence of toxic contaminants that may have been shown to have an impact in previous studies or in the Mount Sinai research (b) to identify sources that contribute to indoor contamination. Moreover, risk assessments can be employed where quantitative data are available.

  A glaring example is ATSDR's refusal to conduct or require EEE to perform indoor air sampling for particulates and dust accumulation – which may contain significant quantities of highly toxic coal ash.

A related glaring example: Although EEE states that it will do air sampling its October Field Sampling Plan specifies US EPA method TO15 and Tentatively Identified Compounds. However, this method only measures VOCs and provides no information on the levels of airborne suspended particulates including fly ash, an important and highly toxic contaminant with numerous and large potential sources in the area.

- The DEP methods do not consider additive or cumulative exposures and neglect important sources, pollutants and exposure pathways. Most importantly, neither the DEP nor EEE studies will provide any information on exposure to fugitive releases of coal ash to the air, despite the fact that such ash contains elevated levels of highly toxic metals including lead, arsenic, chromium, cadmium and mercury. Exposures related to airborne coal ash include indoor and outdoor dust accumulation and inhalation fine suspended particulates. However, EEE's proposal fails to provide for the kind of sampling needed to assess such exposures and to meet the terms of the SOW. (For further discussion see Section 3).

- In one of the CDC-funded studies a research team at Mt. Sinai Hospital is conducting several experiments to determine whether toxins common in the PV cluster area may be triggering the JAK-2 mutation, a genetic precursor to PV. This research could also provide knowledge about potential synergistic and bio-accumulative effects of chronic toxic exposure. Without a thorough contaminant exposure assessment investigators will not be able to test whether the chemical-symptom correlations obtained by the Mt. Sinai group are similarly found in homes and areas where JAK-2 or MPNs have been found.

- We agree with ATSDR Region III comments on EEE's proposal which state, "We can't tell how Equity's plans differentiate from the on-going PADEP residential and outfall sampling. It reads in these documents almost like PADEP's results are being 'counted' towards Equity's evaluations in some places or as if Equity is just doing the same thing as PADEP in additional locations?"

- A key element in the design of the 2010 DEP project was the current knowledge of P-Vera. Specifically, DEP sampled present and past residences of all P-Vera patients and JAK-2 positives (obtained from the results of the 2007 P-Vera study and 2009 volunteer JAK-2 blood screening). Since 2009, researchers have learned a great deal more about the occurrence of P-Vera, JAK-2 and MPNs.

- It is unclear how or if EEE will integrate the most current information on disease prevalence into their sampling efforts. If EEE disregards current data, their work will be out of date and inconsistent with the health outcome data now being collected by other groups such as the University of Pittsburgh and Drexel University. For instance, current PA Cancer registry data shows that 130 cases of P-Vera have been reported from the tri-county area since the 2007 study. EEE should use this current disease prevalence data to locate additional sampling points so that current prevalence and environmental data can be integrated.

2.0 Fugitive Coal Ash: Over the past two years, the area's citizens through the Community Action Committee (CAC) process have repeatedly asked ATSDR and EEE to ensure that the air & water assessment includes sampling and analysis to determine the extent to which residents are being exposed to fugitive ash particles emitted from ash disposal facilities *and from trucks transporting the wastes.* Such emissions can expose residents via the air they breathe and inhalation and ingestion of dust containing coal ash that accumulates inside and outside homes. We emphasize that such accumulations can be the result of many years of deposition since the culm-burning fluidized bed combusters (FBCs) and ash disposal sites have operated for more than 20 years in the cluster area.

As you are aware numerous studies have shown that inhalation of fine particulates has been linked to respiratory disease, heart disease and cancer. Moreover, the coal ash contains significant levels of metals including arsenic, lead, cadmium, mercury, chromium, other toxic metals and radium. Arsenic and radium exposures in humans are associated with increased risks of skin, lung, liver, leukemia, breast, bladder, and bone cancers due to chronic ingestion or chronic inhalation.[2] Despite its hazardous nature, coal ash escapes designation as a hazardous waste owing to a regulatory loophole currently under consideration by EPA. Moreover, ash contains significant levels of radioactive elements.[3]

We have repeatedly urged ATSDR to conduct or require EEE to:

- Conduct sampling needed to quantify fugitive emissions downwind of ash disposal areas in areas of elevated PV

- Measure ambient concentrations of suspended particulates (PM2.5 and PM10) downwind of ash disposal facilities.

- Sample and analyze residential indoor and outdoor dust accumulations near ash fills

The following figure compiled by ATSDR illustrates a correlation between counties with numerous coal waste power plants and those with elevated PV rates. Although the correlation may not prove causation, it is compelling reason to require intensive monitoring in areas of (a) coal burning plants and ash disposal facilities (b) areas with elevated PV cancer rates. Such measurements are required by the SOW.

[2] Ruhl et al. "Survey of potential environmental and health impacts in the immediate aftermath of the coal ash spill in Kingston, Tennessee," *Environmental Science & Technology* / Vol. 43, No. 16, 2009

[3] U.S. EPA: Radiation Protection website, http://www.epa.gov/radiation/tenorm/coalandcoalash.html

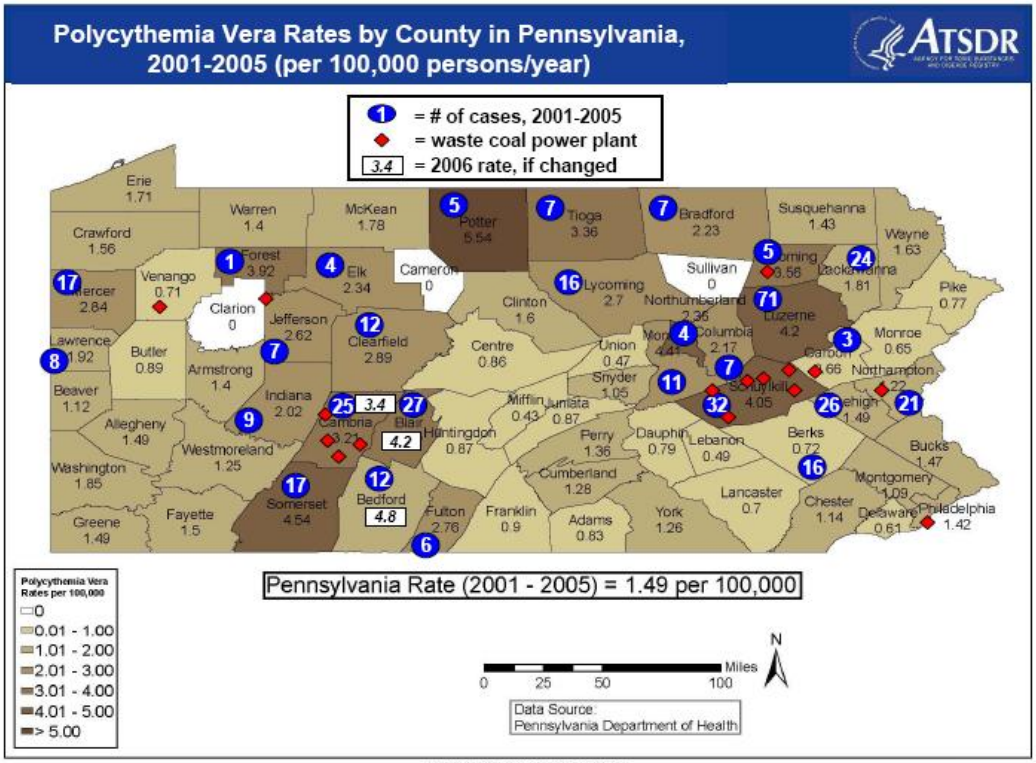

Figure 1: The PV rates appear to be correlated to those counties with coal waste burning power plants. For example, Schuylkill Co. has six waste coal plants and a 4.05/100,000 rate compared to the state-wide level of 1.49. The blue dots are the number cases. Whether there is any causation between the coal-waste power plant emissions and PV has not been determined. However, several studies are underway or planned which may shed light on the issue. Also there may be other environmental factors associated with coal country that contribute to PV and related diseases.

2.1 EEE's protocol regarding coal ash air emissions: EEE's September 23, 2011 response to CAC's recommendations[4] states that the contractor will not conduct sampling and analysis of coal ash, nor will it conduct any new sampling and analysis to estimate amounts of fugitive ash released or to determine indoor and outdoor exposures of residents to fugitive releases of ash (i.e. suspended particulates in air, dust accumulations at or in homes. This response fails to meet the monitoring requirements in the SOW which instructs the contractor to conduct "*special purpose air monitoring to better characterize the exposure citizens in areas of estimated high concentration and areas containing current and past PV patient residences*" (see excerpt in footnote).[5]

[4] Memo of August 11, 2011/ To: Peter Jaran, Equity Environmental Engineering / From: Joe Murphy, CAC Chair and Henry S. Cole, Ph.D. (HCA), Through: Dr. Elizabeth Irvin-Barnwell, ATSDR/ Re: Recommendations for Air and Water Assessment Protocol.

[5] From CDCs SOW for the Air & Water Assessment (2010):

Air pollutant monitoring. Existing PA DEP and EPA air monitoring data and the results of atmospheric dispersion modeling will be used to identify locations and contaminants requiring "special purpose" air monitoring to better characterize the exposure of citizens in areas of estimated high concentration and in areas containing current and past PV patient residences. At these locations in the study area intensive air pollution measurements will be taken to validate and/or refine the initial inhalation exposure assessment. The pollutants to be measured, the specific monitoring locations, and the duration of measurements will be determined following the completion of the modeling assessment.

Instead EEE states that it will use existing data and studies it deems sufficient for purposes of its assessment. However, the current documentation fails to identify site-specific studies that would enable EEE to conduct a valid air exposure assessment without doing additional monitoring.[6]

Along these lines, we recommend that EEE utilize PADEP Bureau of Air Quality studies that specifically include monitoring near coal ash sites. The monitors and data utilized during a USEPA study conducted near one disposal site (Mr. Richard Fetzer, USEPA On-Scene Coordinator) should also be evaluated. However, such studies while valuable do not equate with the SOW required studies aimed at assessing exposures in areas with elevated rates of PV.

Section 2.1.2 (EEE's October 2011 Field Sampling Plan) states that ambient air samples will be analyzed using EPA's method TO-15. However, this sampling method is limited to volatile organic compounds and does not analyze for inorganics or particulates, i.e. PM2.5 and PM10, particles that are known to have a wide range of health effects. Moreover, PM2.5 particulates measured downwind of ash disposal sites and activities are likely to contain substantial concentrations of fly ash, which contains highly toxic metals including carcinogens. <u>This neglect of particulate matter is totally unacceptable and inconsistent with the objectives and requirements of the SOW.</u>

2.2 Indoor air and dust sampling: Neither DEP, ATSDR nor EEE have committed to conduct indoor sampling to determine whether exposure to coal ash is occurring via airborne particulates or dust accumulations. Studies have shown that outdoor particle emissions are an important source of indoor exposures.[7] Because DEP's residential sampling of indoor air is restricted to radon, the study provides <u>no</u> useful information on indoor exposures to contaminants despite the fact that most people spend a large portion of their time indoors. The exposure assessment should include indoor measurements of (a) airborne particulates (b) dust accumulated on surfaces. Such exposures are likely to be additive over time and cumulative in the sense that residents are exposed to both indoor and outdoor pollutants (See footnote 6). We emphasize that FBCs and associated ash disposal sites have operated in the cluster area for more than 20 years and that the

---

[6] Joe Murphy, President of the *Betty Kester Alliance for a Healthy Future* has requested a *list describing all of the records, studies and data that EEE plans to use in its assessment as well as copies of all such documents and records. Email of November 20, 2011, Murphy to Peter Jaran. Murphy also requested to know what fugitive emission inputs and modeling approaches that EEE will use to incorporate ash disposal emissions into the modeling. .*

[7] Benson, F et al. "Indoor-Outdoor Air Pollution Relationship: A literature review." *National Technical Information Service, Springfield, Virginia*, This literature review concludes, "Based on a review of the literature, it was possible to infer relationships between indoor and outdoor pollution and to identify factors that affect these relationships. The relationships identified must be considered tentative. Except for bacteria, and perhaps, for fungus spores, indoor pollution levels appear to be controlled primarily by outdoor concentrations.

A specific example: Anderson, I, "Relationship between outdoor and indoor air pollution." *Atmospheric Environment (1967), Volume 6, Issue 4, April 1972, Pages 275-278.* In this study, paired 24-h samples of sulphur dioxide and suspended particulate matter were studied outside and inside a room for 7.5 months. The indoor concentrations of sulphur dioxide and suspended particulate matter were, on average, 51 and 69 per cent respectively of the simultaneous outdoor values. For the two pollutants the coefficients of correlation between indoor and outdoor values were 0.52 and 0.83 respectively.

SOW requires that the Air & Water Exposure Study assess *past* as well as present exposures.[8]

2.3 Ash emission estimates for modeling input: Exposure to airborne ash and ash in dust accumulations may represent some of the most important exposures in the PV cluster area. Yet neither either EEE's September 23 response to CAC nor its sampling protocol explains how the company obtains fugitive air emission estimates for air modeling purposes. As stated previously EEE's plan does not include plans to sample emissions for ash releases at disposal sites. Consider also:

- EEE's September 23, 2011 letter to Joe Murphy specifically states, that it will restrict its use of ash fill emissions data to "no more than two sites." This statement means that EEE makes no commitment whatsoever to any use of ash emissions in its modeling. As the September 23 response states, EEE will use existing DEP data only "t*o the extent that the data can be readily obtained and properly formatted for inclusion.*"

- Neither EEE's response to CAC, nor its sampling protocol gives any indication whether it will use data specific to areas of elevated rates of PV and/or to areas adjacent to ash fills. EEE's September 23 response to CAC also states that the company will <u>not</u> consider the management practices or records of inspections, citations, violations associated with historical and present ash disposal in the cluster area. This decision presents a major deficiency – how can the company know anything about historical emissions from ash disposal sites if it doesn't even know the extent to which an ash fill was exposed to wind or covered on a daily basis. As Figure 2 indicated wastes disposed (in this case at the Hazleton Landfill) is not always protected from the wind.

[8] Excerpt from SOW for Air & Water Exposure Assessment (2010)

2. Air Pollution Exposure Assessment. This work will evaluate the present and past exposures of cluster-area residents to specific air pollutants from local and regional sources. Specific tasks include identification and characterization of air pollution sources, atmospheric dispersion modeling and analyses, air pollutant monitoring, and recommendations for supplemental work needed to fill gaps identified in the review.

Figure 2: According to Kester Alliance advisor John Mellow (former DEP official) the material being dumped into the Hazleton Creek Properties Landfill is Flue Gas Desulphurization (FGD) and Ash material.

Mellow notes the lack of wind and protection from infiltration on stockpiled material. The dumped material not in lifts or compacted.

Source: Memo, John S. Mellow, June 23, 2011.

3.0 Modeling: pollutant transport from upwind sources: We previously requested that EEE incorporate the potential impacts of air sources from major known sources (e.g. numerous large coal burning power plants located upwind of the study area. However, EEE states in its September 23, 2011 response (1) that doing so is outside of the scope of the project and (2) "it is highly unlikely that these sources are impacting the study area."

We find this response totally unacceptable. The quote in (2) suggests that EEE is totally unaware of relevant science. Many studies have established that air pollutants from power plants travel and impact the air in the eastern United States. We note that EPA this summer finalized its cross state air pollution rule based on the science. Pennsylvania and the Midwestern states have been ordered to reduce pollutants that react in the atmosphere to form fine particles and ground-level ozone, pollutants transported long distances, making it difficult for downwind states to achieve ambient air standards. (NAAQS).[9] Moreover, many of the pollutants emitted from power plants in western Pennsylvania and Ohio are the same pollutants emitted from coal burning plants surrounding the study area. From an epidemiological standpoint, EEE might consider that the lungs do not recognize state boundaries. We also note that one of Pittsburgh's studies involves 4 "coal counties" in western Pennsylvania.

At the very least, ATSDR/CDC should require the contractor to do a literature search to identify air mass pollutant loadings associated with westerly and southwesterly winds and to identify those pollutants and background concentrations that may add to exposures in the PV cluster area.

4.0 Groundwater contamination: The Pennsylvania Department of Environmental Protection promotes the disposal of CCW into abandoned mines as a form of land reclamation or "beneficial use." However, investigations by the Clean Air Task Force (CATF), the Natural Resources Defense Fund (NRDC), the Environmental Integrity

[9] US EPA, "The Cross-State Air Pollution Rule improves air quality throughout the eastern half of the United States, helping states achieve national clean air standards." http://www.epa.gov/airtransport/

Project (EIP) [10] Earthjustice / Sierra Club[11] have indicated that CCW disposal sites in Pennsylvania including those designated as "beneficial use" are leaching contaminants contained in the ash into groundwater. In many cases levels measured in groundwater exceeded drinking water maximum contaminant levels (MCLS). Many sites have no liners or leachate collection systems.

4.1 EEE's approach: In generally, we find that EEE's plans overly rely on regulatory studies conducted by EPA and DEP. For a scientific study to be valid it needs to identify limitations and uncertainties in the analyses and data used to draw conclusions and should also include recommendations for additional research to reduce such limits.

We are gravely concerned that EEE will simply use data without meeting these requirements, especially in cases such as the Hazleton Landfill, where regulatory agencies have declared that the sites are in compliance despite challenges by former DEP officials. The same is true for the McAdoo Associates Superfund Site, discussed below.

4.2 Big Gorilla ash disposal site: We strongly recommend that EEE and government agencies examine comprehensive study by the Clean Air Task Force that looks at groundwater monitoring data and hydrogeological data from ash disposal sites in Pennsylvania including the Big Gorilla site and several others in Schuylkill County.[12] With regard to the Big Gorilla site, two of CATF study findings are especially relevant: (1) *for such a large ash disposal area the paucity of data and absence of essential information is disconcerting* (2) *however, the data shows that concentrations of ash constituents including (calcium chloride, magnesium, sodium, aluminum, manganese, iron, total dissolved solids, sulfates, chromium, arsenic, selenium, and zinc) became substantively higher in pit water and/or at downgradient monitoring points after ash placement started in the Big Gorilla.*

The first conclusion (with further detail in CATF study) shows that it is essential not to rely principally on DEP studies. The second conclusion illustrates the importance of examining groundwater impacts within and downgradient of ash fills, especially where drinking water sources are potentially affected. We also note that the Big Gorilla site occupies a ridge area upslope from Ben Titus Road (an area with multiple PV cases) and the adjacent Still Creek Reservoir.

---

[10] According to a major analysis by the Environmental Integrity Project (EIP), a large number of active coal ash disposal sites in 19 states may be violating a federal ban on open dumping. The EIP survey found levels of groundwater contamination at 33 coal ash landfills or impoundments nationwide that are high enough to violate safe drinking water standards (MCLs) and trigger the "open dumping" provisions of the Resource Conservation and Recovery Act (RCRA). Based on a review of recent (though limited) groundwater monitoring data from state agencies, the 33 active coal ash disposal sites in 19 states meet the open dumping criteria for the following ash-related pollutants: arsenic, barium, cadmium, chromium, fluoride, lead, mercury, and selenium. This list includes chemicals that cause cancer, neurological damage, developmental problems, and other diseases. http://environmentalintegrity.org/06_23_2011.php

[11] http://action.sierraclub.org/site/DocServer/OOC2_Exec_Summ_and_Tables.pdf?docID=5761

[12] Clean Air Task Force, Impacts on water quality from placement of coal combustion waste in Pennsylvania coal mines, 2007, http://www.catf.us/resources/publications/files/PAMinefill.pdf

4.3 The McAdoo Site: Kline Township, Operable Unit 1(OU1): OU1 of the McAdoo NPL site is located upslope from Ben Titus Road, an area with multiple cases (and deaths). McAdoo Associates stored and incinerated large volumes of industrial chemicals at the site. According to photographic evidence and eyewitness accounts including a former DER (Dept. of Environmental Resources, now DEP) employee, the company disposed some of this waste into former mine shafts.

In its August 11, 2011 memo to Peter Jaran (EEE), CAC recommended that EEE include in it's assessment a review of the adequacy of EPA and DEP groundwater studies on the McAdoo Associates Superfund sites. However, Jaran states that EEE will not do so since EPA considers the site to be fully remediated and closed. However, Jaran's justification misses a critical point – the difference between a regulatory decision based on rules and regulations versus a scientific assessment which by all standards must include a full discussion of the limitations of the study.

The difference is critical in this case. Regulatory analyses are not always exhausted and invariably run into cost considerations. CAC and groundwater advisor Bob Gadinski, a former DEP hydrogeologist, believe that EPA and DEP groundwater monitoring is insufficient to support EPA's conclusion that contamination is limited to the shallow aquifer. Gadinski has recommended a much more extensive and deeper network of wells as essential to determine whether deeper aquifers are contaminated given: (1) the complex and highly fractured nature of the bedrock in the area and (2) further potential migration routes associated with abandoned, underground coal mines and (3) observations by residents and former DEP employees that industrial wastes were dumped into mine shafts.

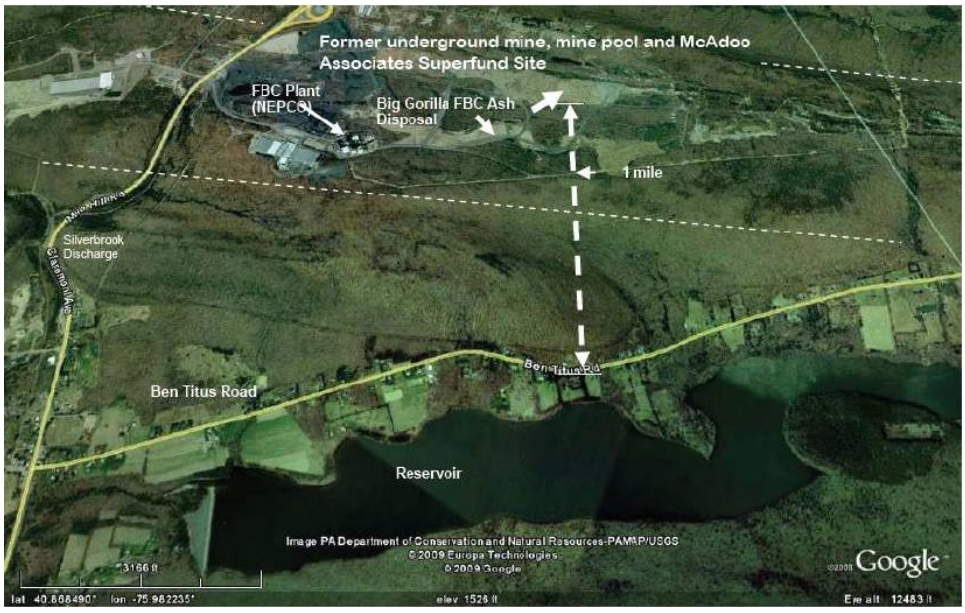

Figure 4: Google Earth image showing location of Ben Titus Road, former mining areas (between dashed lines), the NEPCO power plant, and the Big Gorilla ash disposal area. The location of this map can be seen in Figure 1. The dark body of water is the Still Creek Reservoir; Figure 6 shows a close up view of the reservoir. At least four cases of Polycythemia Vera have been confirmed in the portion of Ben Titus Road near the NEPCO facility and Big Gorilla ash fill.

4.4 McAdoo Site, the Blaine Street Area (OU2): Disposal activities at Blaine Street were similar to the Kline Twp. site. Large volumes of industrial liquid wastes were stored in underground tanks. EEE states that they consider both operating units of the McAdoo site closed and properly remediated based on EPA's 5 year review published in 2010. However, we question whether EEE has considered the following:

- In 2008, EPA's Office of Inspector General (OIG) criticized EPA's Region III for its deletion of both locations from the National Priority List (NPL). The OIG states "…sampling data showed that groundwater cleanup goals specified by the Record of Decision (ROD) had not been met for four contaminants of concern specified by the ROD."

- The OIG also noted that Region III did not follow criteria specified by EPA's guidance with regard to the deletion decision for the McAdoo Associates site, "the region has not ensured the EPA or the State of Pennsylvania took appropriate response actions for all regulated contaminants." The OIG also noted in the report that benzene and ethylbenzene (that were commonly dumped at the site) …"contamination continues to exceed levels that protect human health."

- The OIG also found inadequate the monitoring used to characterize phthalate contamination, "Region III will need to describe how EPA determined that there are sufficient monitoring wells to characterize bis (2-ethylhexyl) phthalate in the groundwater."

- EPA's 2010 Five-Year Review for OU2 states, "A protectiveness determination of the remedy at the MBS location (OU2) cannot be made at this time until further information is obtained. Further information will be obtained by completing the vapor intrusion assessment that is currently underway as part of the FFS. It is expected the vapor intrusion assessment will be completed by July 2011, at which time a protectiveness determination will be made."[13]

- Due to concerns raised by OIG, EPA has initiated a remedial program aimed at controlling intrusion VOCs from groundwater into buildings. According to EPA's 2010 five-year review, monitoring and remediation continue at both McAdoo Associates locations. In a recent email, EPA Remedial Project Manager, Mr. Brad White, stated that the Agency is attempting to use sodium persulfate to remediate groundwater contaminated with petroleum products in the Blaine Street area.
  (**Source:** EPA's Office of Inspector General Evaluation Report, "EPA Decisions to delete Superfund Sites Should Undergo Quality Assurance Review", Report No. 08-P-0235, August 20, 2008.)

4.5 Public Supply Well #6: This public supply water well is located in close proximity to OU2 and also to a large area of unlined pits containing millions of cubic yards of coal ash. This well was removed from production apparently after levels of arsenic exceeding MCL drinking water standards were detected in 2007.

---

[13] U.S. EPA, Five-Year Review Report, 2010, McAdoo Associates Superfund Site, http://www.epa.gov/superfund/sites/fiveyear/f2010030003496.pdf

This well, as figure 5 shows, is close to the OU2 site of McAdoo Associates and the large area of unlined coals ash pits (dumped by a company known as the A/C Fuels Co). Arsenic is a known component of coal ash generated in the area.[14] Also of concern was the fact that Well #6 is located directly above the Mauch Chunk Aquifer and is the supply well closest to the Honey Brook Reservoir. These deep unlined pits also sit above the Mauch Chunk Aquifer. The only monitoring point in addition to the supply wells is a mine pool discharge point located approximately a mile and a half from the site known as the Audenreid Mine Tunnel Discharge.

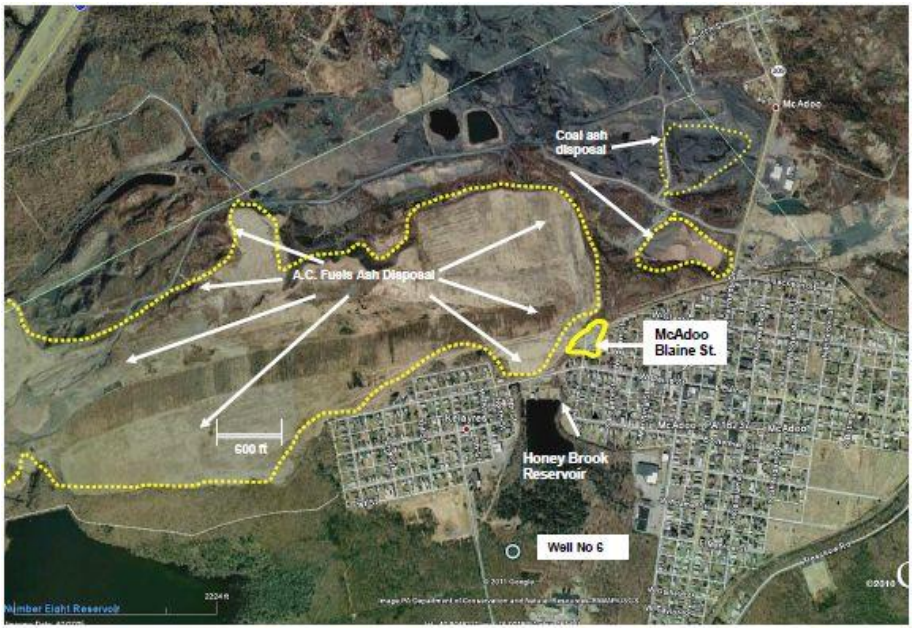

Figure 5: Google Earth Image shows arsenic contaminated municipal well in close proximity to Blaine Street Superfund Site and coal ash pits.

The final Assessment should evaluate the adequacy of monitoring to determine the potential impact of ash and industrial disposal to determine its impact on the Mauch Chunk Aquifer, a source of public drinking water.

4.6 DEP – insufficient evidence to support its claims: On February 15, 2007 Bob Gadinski filed a citizen complaint with the Harrisburg Field office, Office of Surface Mining, regarding coal combustion byproduct (CCB) disposal activities at the WPS Westwood Generating Station pursuant section 521 (a) (1) of SMCRA, 30, U.S. C. 1271 (a) (1) (2006). Gadinski alleged that the public water supply of the Tremont Borough, owned and managed by the Schuylkill County Municipal Authority (SCMA), in Schuylkill County, Pennsylvania, had been adversely affected by the deposition of

[14] The party using this area for coal ash disposal was A/C Fuels Co. We have unconfirmed reports that the ash may have come from the Panther Creek Partners FBC Co-generating unit. EPA's Toxic Release Inventory for 2009 states this facility disposed nearly 20,000 lbs of arsenic compounds contained in ash offsite.

"large amounts" of coal ash at the Westwood generating plant. The Acting Regional Director, Appalachian Region, Office of Surface Mining Reclamation and Enforcement concurred with the Pennsylvania DEP that no violation had taken place based on the claim that the Westwood mine pool has no hydraulic connection with the water supply at the Tremont wells.

Gadinski filed with the United States Department of Interior, Office of Hearings and Appeals. On June 26, 2009, the court found there was insufficient basis in the record to support the Regional Director's conclusions, substantiating Gadinski's claim that the government's evidence was inadequate to support the Office of Surface Mining's conclusion that PADEP properly evaluated relevant criteria.

4.7 Overall summary on groundwater monitoring / exposure assessment: EEE and ATSDR should independently evaluate reports and other data on the above and other sites located in the PV cluster to determine whether the information was based on sound scientific methods and is sufficient to characterize the fate and transport of releases of toxic chemicals into groundwater, especially where groundwater (and reservoirs) are public water sources.

As noted in the above paragraphs, the data for ash disposal sites is often sparse. As indicated in Section 4.5 DEP's science has been found wanting. In addition, the state's Environmental Hearing Board has before it pending decisions regarding unanswered technical concerns regarding environmental conditions at the Hazleton Creek Properties (HCP) Landfill. The outcome may require EEE to reconsider its use.

In summary, although discussion of the opinions of the regulatory staff can provide access to the important sources of information, PV investigators should not rely on a blanket answer that sites are in compliance.

5.0 EEE's October 2011 Sampling Protocol: This draft plan is sadly lacking in detail and commitment to the basic needs of the assessment. The draft is overly reliant on a sampling plan developed by DEP and its environmental contractor AECOM. Specific points follow:

- The document states in section 2.0, "The field sampling program will consist of the collection of samples primarily from residential locations for various analytical parameters from air and groundwater sources. Soil and sediment samples may also be collected where appropriate."

- The only indication of where and how many sediment samples are to be taken occurs in Appendix B Section 2.7, "Sediment sampling will be conducted at locations within the study area." These locations correspond to the locations at which the surface water samples are collected." At all surface water collection points, or only some? If not at all collection points then which ones and what selection criteria will be used?

- Also in the same section, "Sampling of the sediments will be accomplished using a stainless steel spoon and mixing bowl." This is a wholly inadequate description of a sampling procedure. If the procedure is an EEE in-house procedure then it is incumbent on EEE to fully describe the procedure. If it is based on reported or widely used procedures, then those procedures should be documented by citing appropriate references. The procedure as described seems to provide no means for assuring a representative sample will be collected or, alternatively, that enough individual samples will be collected at each location to assure a representative result can be calculated from the individual sample results.

- There is no clear description of where and how many soil samples will be taken, or what the sampling location selection criteria will be. The impression is that soil samples are regarded as of minimal importance or interest to the investigation. If that is the opinion of EEE or ATSDR it should be justified and soil sampling eliminated if it is not within the scope or resource limits of the contract or the expertise of EEE. If soil sampling is regarded, as it should be, as an essential part of this investigation, then its proper execution should be given due attention.

- As was the case for the sediment sampling procedure, the described soil sampling procedure is wholly inadequate for similar reasons. In addition, toxic elements in soils may be leached, fixed in place, or biomagnified into plant tissues, residues, and organic matter in the surface soil. It is troubling, therefore, that the EEE sampling procedure appears intended to examine only an intermediate 6-inch layer of soil between the potentially toxic-enriched "lawn root thatch" and deeper soils that might accumulate leached toxic elements. Such an approach needs to be justified at least by reference to other studies that have verified the reliability of the proposed EEE sampling approach. Even if EEE has or can find such supporting documentation, its relevance and appropriateness in an investigation of this type needs to be verified and described. Though it is unclear, the impression left by the Plan is that both the general approach and the specific soil sampling procedures are totally inadequate with regard to the objectives of this investigation.

- In addition, Table 1 provides the only indication of how soil and sediment samples are to be processed and analyzed. As an example, the only information provided regarding analytical determination of "Metals" in the soil/sediment samples is that measurements are to be made using EPA SW-846 Method 6010B (ICP/OES). This method only specifies the analytical instrument procedure to be used to measure "metals" and makes no specification of the method of digestion to be used to prepare samples for analysis for the ICP procedure. The digestion method is critical to interpretation of the resulting data. The digestion method should be specified (CAC strongly suggests that if only one digestion method is to be used, then it should be 3052.) and reported. Additionally, it is necessary to know how the samples are processed from time of collection in the field through digestion and analysis.

- The monitoring well purging procedures appeared reasonable but, again, criteria for deciding when a low-yielding well has been adequately purged to proceed with sampling are left to the discretion of the person doing the sampling. Whenever such a purging decision is made the criteria for the decision along with all the purging water parameters data, including time of each parameter measurement, should be in the field sampling data records and included in the final archived data for the investigation.

- Section 2.1.1: The Target Analyte List (TAL) list does not include strontium that could be a significant parameter with respect to ash and other possible contamination sources. Please note that some additional inorganics indicative of stabilized ash or other materials may require supplementing the proposed TAL analysis. This comment should also be considered in Standard Operating Procedures Section 2.4 and subsequent sections on "metals" in the proposed analysis of various media.

- Section 2.1.2: The reference to regional radon levels is not provided. The final Sample Plan should cite appropriate references.