

**Comments on the
U.S. Environmental Protection Agency's
*Coal Combustion Waste
Damage Case Assessment*
(July 2007)**

**Prepared in response to:
US EPA, Notice of Data Availability
72 Fed. Reg, 49714
August 29, 2007
RCRA Docket No. EPA-HQ-RCRA-2006-0796**

**Submitted by Earthjustice, Clean Air Task Force *et al*
February 11, 2008**

Table of Contents

Introduction.....	1
A. The Substantial Increase in Proven Damage Cases Provides a Rationale for a National Rulemaking.....	1
B. EPA Failed to Investigate a Substantial Number of Damage Cases that have been Brought to its Attention	2
C. EPA Fails to Use a Consistent Standard for Classifying Damage Cases	2
1. EPA requires that all CCW proven damage cases show evidence of off-site contamination, a requirement never previously imposed on damage cases before the 2000 Regulatory Determination.....	3
2. In the CCW Damage Assessment, EPA requires that all proven damage cases show an exceedence of primary MCLs.....	4
D. EPA Must Examine Damage Cases from the Disposal of CCW in Surface Mines.....	5
E. Additional CCW Damage Cases.....	6
1. Gambrills Fly Ash Disposal Site, Anne Arundel County, Maryland.....	6
2. Colstrip Power Plant, Colstrip, Montana	8
3. Gibson Generating Station: Gibson County, Indiana	9
4. Clifty Creek Generating Station: Madison, Indiana	11
5. Grays Siding Neighborhood, Oakwood, Illinois.....	12
6. Arizona Public Service, Four Corners Power Plant Surface Impoundments, Fruitland, New Mexico	12
7. Allegheny Energy Hatfield's Ferry Power Station CCW landfill in Monongahela Township (Greene County).....	14
8. Cheswick Power Plant, Springdale Borough, Allegheny County, Pennsylvania	15

9.	Phillips Power Station – Cresswell Heights Municipal Water Supply, Beaver County, PA	17
10.	Mitchell Power Station Lagoons, Washington County, Pennsylvania	18
11.	Ohio Power Mitchell Plant, Moundsville, West Virginia.....	18
12.	Appalachian Power DBA AEP, John Amos Plant, Putnam County, West Virginia	20
13.	Tampa Electric Company Big Bend Facility, Disposal Area 2 and Gypsum Storage Area, Ruskin, Hillsborough County, Florida	21
14.	Seminole Electric Plant FGD Landfill, Seminole Electric Plant 1 & 2, Palatka, Putnam County, Florida.....	22
15.	Gulf Power Plant Lansing Smith Facility, Panama City, Bay County, Florida	22
16.	Progress Energy Sutton Steam Generating Plant (formerly Carolina Power and Light), Highway 421, Wilmington, North Carolina	23

Introduction

The increase in the number of proven damage cases acknowledged by EPA in its July 2007 “Coal Combustion Waste Damage Case Assessment” is highly significant. This increase alone justifies an immediate rulemaking to establish federal minimum standards for CCW disposal and reuse. Furthermore, this increase in damage cases has occurred despite EPA’s longstanding bias toward discounting evidence of damage at CCW sites and its failure to actively investigate potential damage cases.

Due to time constraints and limited resources, we cannot provide a case-by-case analysis of sites examined by EPA. In past comments, we provided detailed criticism of the abundant shortcomings of the damage case assessments completed by EPA’s contractors.¹ For the purposes of this NODA and in the interest of moving forward towards comprehensive federal rulemaking, we bring to EPA the following observations based on EPA’s “Coal Combustion Waste Damage Case Assessment”:

- (1) The 2007 Assessment provides a compelling basis on which to move expeditiously to a rulemaking under RCRA;
- (2) EPA has found an impressive number of damage cases despite its failure to investigate damage occurring at a substantial number of CCW disposal sites;
- (3) Despite the rise in “proven” damage cases, the total is lowered arbitrarily by EPA’s inconsistent and unreasonable methodology for assessing CCW damage cases; and
- (4) EPA needs to consider evidence of damage occurring at surface mines where CCW has been disposed.

Furthermore, we bring to EPA’s attention in these comments information regarding 15 new CCW damage cases that we are requesting EPA investigate and review.

A. The Substantial Increase in Proven Damage Cases Provides a Rationale for a National Rulemaking

EPA’s “Coal Combustion Waste Damage Case Assessments” recognizes 24 proven damage cases -- more than double the number of proven damage cases cited in the 2000 Regulatory Determination. Furthermore, EPA recognizes another 43 “potential” damage cases in the 2007 Assessment.² As EPA conceded in its 2000 Regulatory Determination, given the lack of monitoring or serious deficiencies in monitoring at most CCW disposal sites, damage caused by lax management of CCW is highly likely to be

¹ See February 8, 2002 letter to Dennis Ruddy, EPA, OSW re “Comments on Draft Assessment of Candidate Damage Cases Involving Fossil Fuel Combustion Wastes.”

² “Potential damage cases,” by EPA’s definition, constitute sites at which groundwater or surface water is contaminated by CCW leachate but where the agency has no evidence of migration beyond the property boundary or where contaminants are not listed as primary contaminants under the Safe Drinking Water Act. “Potential” does not mean that contamination is not proven.

underestimated.³ While we believe that EPA's latest damage case list represents only a small fraction of the sites contaminated by CCW, *the significant increase* in the number of proven and potential damage cases speaks for itself. This sharp increase in officially recognized, documented cases of mismanaged CCW since 2000 provides a solid basis for EPA to proceed to a federal rule.

B. EPA Failed to Investigate a Substantial Number of Damage Cases that have been Brought to its Attention

EPA readily admits in the CCW Damage Case Assessment that it did not investigate nearly a third of the sites that were brought to its attention.⁴ EPA did not examine 44 of the 135 sites identified as potential damage cases. In many instances, these sites were brought to EPA's attention over 10 years ago. These contaminated sites span 19 states and include at least three sites that were the subject of citizen lawsuits and/or state enforcement actions. (See *infra*). EPA admits that it does not actively investigate new CCW damage case sites, and it lists new cases only if material is presented to the Agency that meets EPA's stringent criteria for a "proven damage case." Yet environmental groups and individuals often do not have the ability to obtain the information that could be easily retrieved by EPA. In those instances where nonprofit groups do not bring EPA sufficient information, EPA routinely does not follow up on their efforts. Consequently dozens of sites are never investigated or remediated. Yet EPA clearly has the authority under sections 3007 and 7003 of RCRA to investigate damage. EPA has been repeatedly asked by environmental groups to use their RCRA information gathering authority for those purposes, but to no avail. Our request, below, for classification of additional damage cases reveals that significant documented damage has occurred or is occurring at several sites on EPA's list of "indeterminate" and "not re-evaluated" sites, where information was readily available to EPA, had EPA chosen to make a minimal effort to investigate the sites. We are asking that EPA make that effort now.

C. EPA Fails to Use a Consistent Standard for Classifying Damage Cases

EPA's analytical framework for determining CCW damage cases was designed to minimize the number of "proven" cases. The Agency's "test of proof" for determining CCW proven damage cases, which was developed specifically for the 2000 Regulatory Determination, disqualifies scores of CCW damage cases from the "proven" category. The Agency departs, without explanation or justification, from the analytical framework employed in four previous regulatory determinations where similar damage case analyses were required.⁵ For damage cases involving CCW, EPA applies far more stringent

³ EPA stated, "Given the volume of coal combustion wastes generated nationwide (115 million tons) and the numbers of facilities that currently lack some basic environmental controls, especially groundwater monitoring, other cases of proven and potential damage are likely to exist." 2000 Determination at 32,216.

⁴

⁵The four previous regulatory determinations were (1) Regulatory Determination for Wastes from the Exploration, Development and Production of Crude Oil, Natural Gas and Geothermal Energy, (2) Regulatory Determination on Cement Kiln Dust, 60 FR 7366, February 7, 1995, (3) Regulatory

criteria for determining whether a particular damage case is “proven” than was ever used by EPA for any other solid waste stream. The consequence of employing the more stringent criteria is that numerous damage cases that EPA would have considered “proven” under the standards used in previous determinations are dismissed as “potential” when they involve CCW.

For example, when one compares EPA’s treatment of CCW damage cases with the treatment of cement kiln dust (CKD) damage cases contained in EPA’s 1995 Regulatory Determination on Cement Kiln Dust, it is evident that EPA applied very different standards. Although EPA asserts that its analyses of damage cases for the two wastes are equivalent, there are very important and obvious differences. For CCW, but not for any other waste, EPA requires that all proven damage cases show (1) substantial off-site evidence of contamination and (2) the exceedence of primary MCLs, if the administrative or scientific “test of proof” are unavailable.

1. EPA requires that all CCW proven damage cases show evidence of off-site contamination, a requirement never previously imposed on damage cases before the 2000 Regulatory Determination.

In the 2007 CCW Damage Case Assessment, EPA defines “proven damage cases” as “those with exceedances of primary MCLs or other health-based standards in ground water or surface water off-site or at a distance from the waste management unit sufficient to conclude that they could cause human health concerns.”⁶ However, in the CKD Determination, some damage cases were considered “proven” if ground or surface water was contaminated by constituents of CKD, even if this contamination was only found on-site. In the Regulatory Determination on Cement Kiln Dust, EPA explained

Environmental damage generally affects the area in the immediate vicinity of the waste disposal site. However in some cases nearby wetlands and streams that are off-site were also affected While the Agency has no documented data on contaminant transport off-site, or documented data on human exposure and risk at the point of drinking water use, this is because the drinking water wells at these sites are currently located far enough away and/or tap aquifers are isolated enough, to be unlikely to intersect contaminated ground water.⁷

EPA recognized that data limitations required that inferences of off-site contamination would have to be drawn from data gathered close to the waste management unit.

When analyzing CCW damage cases beginning in 2000, EPA established a new quantitative standard, instituting a 150-meter test for contaminant detection. EPA

Determination on Special Wastes from Mineral Processing, 56 FR 27300, June 13, 1991, and (4) Regulatory Determination on Four Large-Volume Wastes from the Combustion of Coal by Electric Utility Plants, 58 FR 42466, August 9, 1993 (hereinafter “1993 FFCW determination.”)

⁶ EPA CCW Damage Case Assessment at 2.

⁷ 60 FR 7,366 at 7369. (Emphasis added).

justifies this standard by claiming, “State regulations typically use a compliance procedure that relies on measurement at a receptor site or in ground water at a point beyond the waste boundary (e.g. 150 meters beyond the waste boundary).” Since ground water monitoring was generally unavailable for most sites at a distance of 150 meters from the waste management unit, the majority of damage cases brought to EPA’s attention were summarily relegated to the “potential” category.

There can only be one reason why EPA changed its analysis in 2000, ignoring the precedents established for every other regulatory determination for Bevill wastes. EPA is deliberately reducing the number of proven damage cases by creating a test of proof that is extremely difficult to meet. In the 2000 Regulatory Determination, EPA disqualified six sites that involved primary MCL exceedences on-site on the basis that no off-site exceedences were available.⁸ In EPA’s 2007 CCW Damage Case Assessment, the Agency disqualifies x sites from the “proven damage case” category because no offsite contamination was found.

2. In the CCW Damage Assessment, EPA requires that all proven damage cases show an exceedence of primary MCLs.

EPA’s second change to the criteria for establishing proven damage cases is the requirement that scientific evidence demonstrate an exceedence of a primary MCL. In the 2000 Regulatory Determination, EPA explained “our analysis drew a distinction between primary and secondary MCL exceedences because we believe this factor is appropriate in weighing the seriousness of [CCW] damage in terms of indicating risk to human health and the environment.”⁹ In contrast, the CKD determination found that exceedences of secondary MCL standards satisfied the test of proof for “proven” damage cases. In the CKD Determination, EPA stated

In each case [of proven and potential damage cases], there is information available to indicate that on-site surface water and/or ground water has been affected by CKD management units. Typical impacts include elevated pH, total dissolved solids, and sulfate above secondary federal or state concentration limits as well as elevated levels of certain potentially toxic metals such as arsenic, cadmium, chromium and lead that are above primary drinking water MCLs.”¹⁰

Of the seven proven CKD damage cases discussed in the Report to Congress on CKD, almost half (three) were based on exceedences of only secondary MCLs.

EPA continues to require exceedences of primary MCLs for proven damage cases in its 2007 Damage Case Assessment. By doing so, EPA fails to recognize that there are common CCW contaminants that do not have MCLs, such as boron and nickel, which

⁸ 65 FR 32,224.

⁹ 65 FR 32,224

¹⁰ 60 FR 7,372.

nevertheless can pose serious health threats. In addition, several secondary contaminants common to CCW cause serious damage to human health at high concentrations in drinking water. For example, at numerous CCW disposal sites, the groundwater and/or surface water are contaminated with aluminum, sulfate, iron, and manganese hundreds of times above the secondary MCLs. These high levels often pose substantial risk to human health and render water supplies unfit for human consumption. Furthermore, high levels of aluminum and iron can be highly toxic to aquatic organisms. It is therefore highly improper to limit “proven” damage cases to sites where only contamination from primary MCL is confirmed.

D. EPA Must Examine Damage Cases from the Disposal of CCW in Surface Mines

EPA must examine the wealth of evidence produced by environmental groups that documents the contamination of groundwater and surface water by CCW disposed in surface mines. EPA admits that it did not consider CCW contamination from minefilling in its damage case analysis, because it is “outside the scope of this NODA that deals exclusively with surface disposal.”¹¹ Yet, disposal of millions of tons of CCW in surface mines is essentially indistinguishable from landfills, except that there are usually far fewer safeguards employed at surface mines where CCW is dumped. The lack of safeguards at CCW minefills makes a compelling case for investigating the damage at these sites, particularly where extensive evidence of damage has already been brought to EPA.

Furthermore, it is critically important that EPA examine the nature and extent of CCW contamination at surface mines in light of the Office of Surface Mining’s (OSM) March 2007 Advance Notice of Proposed Rulemaking concerning CCW minefilling. According to OSM, a proposed rule will be published by June 2008. Thus it is essential that EPA immediately expand its limited view of damage cases and consider the ample amount of evidence in the record at CCW minefills.

Lastly, in examining damage at CCW minefill sites, it is important to consider one critical difference between landfills and minefills. Blind adherence to “on-site” versus “off-site” damage will yield an arbitrary and unreasonable elimination of proven damage cases at mines. Inflexible application of the damage case criteria to minefills would show a basic misunderstanding of the implications of using mines as dumps for CCW. With minefills, there simply are no “off-site” areas. Unlike landfills, no restrictions are placed on future uses of those mined lands. It is very likely that homes will be built on top of these mined areas and will be reliant on groundwater given the rural location of these mines. For example, in Indiana, there is no requirement that notice be placed in the deed that the land has been used for CCW disposal, so future landowners would have no reason to believe that the land was used for waste disposal. Regardless of how far the contamination travels or does not travel in a mine, it still has the potential of causing harm to human health.

¹¹ EPA, CCW Damage Case Assessment at 6.

In sum, we specifically request that EPA examine the seven potential damage case sites involving minefilling mentioned in the 2007 CCW Damage Case Assessment, as well as the following sites listed below.

E. Additional CCW Damage Cases

We ask that the following 16 sites be added to the list of damage cases from coal combustion wastes. All of these cases involve either an existing threat to drinking water supplies and/or an ecological threat to surface water.

MARYLAND

1. Gambrills Fly Ash Disposal Site, Anne Arundel County, MD

Late in 2006, the Anne Arundel County Department of Health reported high levels of contaminants in homeowner drinking water wells along Summerfield Road in the Gambrills area of the county. Testing of residents' drinking water revealed the presence of arsenic, cadmium, thallium, beryllium, aluminum, manganese and sulfate at levels above safe drinking water standards.

The affected homeowners are located downgradient of the B.B.S.S., Inc. sand and gravel mine. B.B.S.S., Reliable Contracting Company and Baltimore Gas and Electric ("BGE") are filling the excavated mine with coal combustion waste produced at the BGE power plants. Constellation Energy has dumped approximately four million tons of fly ash from its Brandon Shores and Wagner power plants at BBSS since 1995.

The well water contamination in Gambrills arises out of a process initiated more than ten years ago by BGE, B.B.S.S. and the Maryland Department of the Environment ("MDE"). In the mid-1990s, the sand and gravel mining operations were drawing to a close as the pits were dug deep enough to intersect the groundwater table. The original mining permit issued to B.B.S.S. required reclamation of the pits after operations ceased. B.B.S.S. satisfied this requirement by filling in the old gravel pits with CCW from the BGE power plants. This provided an easily accessible source of fill for B.B.S.S. and a low cost combustion ash disposal solution for BGE.

The BG&E documentation shows that a base layer of bottom ash was to be compacted in place and used as a "liner" to protect the water table aquifer. It is notable that the design documents call for the bottom ash to be placed 4 feet above the water table and to be compacted to a permeability of 10^{-5} cm/sec. Typical landfill liner material requires compaction to a permeability of 10^{-7} cm/sec (two orders of magnitude less permeable) with extensive documentation of compaction testing during placement/construction.

After reviewing the B.B.S.S. reclamation plan to refill the gravel pits with CCW, MDE issued the permits to begin filling the Waugh Chapel and Turner mine pits at the Gambrills site. Filling of the Turner Pit commenced in March 1995. Remarkably, as

early as July 1998, BGE detected elevated sulfate concentrations, a prime indicator of coal ash leachate, in the groundwater beyond the perimeter of the pit.

BGE conducted studies that predicted that even though sulfate concentrations were now found outside of the gravel pits, the concentrations would never exceed the permitted limit of 500 milligrams per liter (mg/l). BGE specifically claimed that sulfate concentrations would only reach 245 mg/l after 32 years, to about the year 2027. As a result, in October 1998, MDE approved expansion of the ash filling operations at the Turner pit.

The following year, in June 1999, sulfate concentrations were found to be greater than 500 mg/l and reached 2000 mg/l by December 2000. During this same time period, MDE authorized BGE to continue to expand its combustion waste disposal activities in the Turner pit. MDE also authorized BGE to initiate filling activities in the Waugh Chapel pit, which BGE commenced in September 2000.

As a result of the expanding groundwater contamination, BGE and MDE agreed on the need for a groundwater recovery system to remediate the contamination. During a November 2002 pumping test conducted as part of the design efforts for the groundwater recovery system, other metals began to be detected in the groundwater. Of particular note is the presence of thallium at concentrations as high as 4 times the MCL (drinking water standard). The MCL for thallium is 2 ug/l, and it was detected at 7 to 8 ug/l. Other metals, such as arsenic and cadmium, were beginning to show increased concentrations as well (compared to the 1995 background levels) although not above the MCLs.

Despite this, in January 2003, MDE issued a new permit that allowed BGE to expand ash filling over an even greater area of the Waugh Chapel pit.

In May 2004, in an attempt to remove the contaminants from the groundwater, BGE and Reliable installed the groundwater remediation system. From 2004 until 2006 the groundwater remediation efforts resulted in decreasing sulfate concentrations in the areas close to the pits, but could not reduce the contamination that extended beyond the pits to at least Summerville Road. In fact, the sulfate concentrations were increasing at the more distant locations, in proximity to the homeowner wells. In October 2006, BGE notified MDE that the contaminated groundwater had reached the homeowners' wells. At that point, the Anne Arundel County Health Department notified the nearby homeowners of the contaminants in their drinking water.

In response to publicity surrounding contamination of drinking water wells near the site, Constellation has stopped dumping at BBSS and entered a consent agreement with the Maryland Department of the Environment to clean up the site and pay a million dollar fine. But the horse is already out of the barn in the previously filled areas, where the ash is in direct contact with the groundwater and contamination continues to migrate toward the homeowners' wells and beyond. The Anne Arundel County Health Department has recently expanded the area of concern to cover a much larger area that extends well to the south of Summerfield Road. In addition, a study on exposure to

airborne fly ash in the vicinity of the dump found toxic ash residue to be widely dispersed. The report released today by Eastmount Environmental Services documents the presence of fly ash in dust samples taken in and around homes near the BBSS ash dump.

MDE should have required a site liner and leachate collection system prior to the commencement of the ash fill operation. This would have been the requirement if such operations were strictly regulated under the state's waste disposal regime. Instead, the disposal of the "non-hazardous" combustion waste has resulted in the contamination of drinking water with a significant potential to adversely affect human health and the environment, including surface waters leading to the Chesapeake Bay.

Fugitive dust emissions are also a problem at this site. Environment Maryland Research & Policy Center conducted a dust sampling study in November 2007. Eastmount Environmental Services, a Massachusetts-based air quality consulting firm, coordinated the collection and analysis in conjunction with EMLab P&K. They analyzed twelve dust samples taken from three clusters of homes around the dump. Fly ash was detected in all twelve samples. Concentrations of the soot particles containing fly ash ranged from less than one percent to five percent of the dust.

As a result of the contaminated groundwater in Gambrills, a Baltimore law firm has filed a class action lawsuit against Constellation on behalf of residents who live nearby. The lawsuit alleges that Constellation knew that fly ash was contaminating groundwater but the company failed to take appropriate measures.

In addition, MDE has recently proposed new rules on how fly ash should be handled in the state. The chief of the Anne Arundel County Health Department, however, said new regulations proposed by MDE don't go far enough to protect public health and encouraged the agency to enact tougher air-quality protection and more stringent monitoring of fly ash dump sites.

EPA should designate the Gambrills site as a proven damage case.

MONTANA

2. Colstrip Power Plant, Colstrip, Montana

Contamination flowing from CCW impoundments operated by the Colstrip Power Plant in Colstrip, Montana is threatening homes and ranches with water heavily polluted by sulfate, boron and metals.

Two lawsuits have been recently filed against the six corporations that jointly own and operate the 2,094-megawatt Colstrip plant - PPL Montana, Puget Sound Energy, Portland General Electric, Avista Corp., PacifiCorp and Bechtel Construction Operations. More than 50 Colstrip-area residents filed one suit, and ranchers living several miles from

the plant filed a second suit, both based, in part, on contamination of groundwater by the plant's waste ponds.

Since the plant's construction in the 1970s, Colstrip constructed numerous waste ponds for disposal of CCW, including several that are "lined" only with native soils. State regulators admit that the ponds are leaking, including Colstrip's Stage II pond, which contains scrubber sludge. Montana Department of Environmental Quality (Montana DEQ) reports that the pond is leaking water at the rate of 15 gallons per minute. The plant's Castle Rock Lake (also native clay-lined) that provides storage for a 50-day supply of water to run the plant is also leaking another 100-112 gallons per minute.

The Colstrip Power Plant does not dispute that wells have been contaminated by pollutants seeping from the ponds into the groundwater. Montana DEQ confirms that high levels of boron and sulfate have been found in residential drinking water wells. Residents also allege that Stage I, one of the oldest unlined waste ponds at the plant, contributes contaminants into Castle Rock Lake, the city's fresh water supply.

In view of the admissions of the power plant, the confirmation of the groundwater contamination by Montana DEQ, the pending lawsuits and the threat to the health of Colstrip residents, this site should be designated as a proven damage case. EPA should also investigate the site and consider employing 7003 authority to safeguard public health and ensure complete and timely cleanup of the site.

INDIANA

3. Gibson Generating Station: Gibson County, Indiana

Duke Energy's Gibson Generating Station is the third largest power plant in the world with 3,145 MW of generating capacity. The nearest community is the small town of East Mt. Carmel. The site contains the generating station, five surface impoundments, a 3,490-acre lake that supplies all of the plant's cooling water, a Type II restricted waste (CCW) landfill, and a wetland habitat area. The cooling lake and wetlands are part of a designated Important Bird Area and are important habitat and migration grounds for numerous bird species including the Least Tern. The cooling lake was formerly used by the public for fishing, but the Indian Department of Environmental Management closed the lake to the public due to the detection of high selenium levels.

Coal combustion wastes generated by the Gibson Generating Station are sluiced into the impoundments at the site. These impoundments were issued construction permits, but have not been held to any permit requirements during operation. Excess water is discharged into the cooling pond, so they are not regulated under the National Pollution Discharge Elimination System (NPDES). Since the waste is periodically scooped out of the impoundments and sent to the on-site CCW landfill, the Indiana Department of Environmental Management (IDEM) only considers the impoundments to

be temporary storage areas for the waste and thus not subject to solid waste regulations.¹² The impoundments are not lined, and ground water monitoring is restricted to one peizometer located near the impoundments. The results from this peizometer are not reported to the state.

Surface water samples are drawn from the East Ash Impoundment System and the cooling lake as part of the monitoring conducted for the landfill. The surface water monitoring results from the impoundments shows high levels of arsenic (22 ppb-490 ppb), boron (8.7 ppm-17 ppm), and selenium (16 ppb-75 ppb). Monitoring at the cooling lake is also showing signs of contamination from the wastes with elevated levels of arsenic (23 ppb-57 ppb), boron (6.1 ppm-8.4 ppm), and selenium (6.8-18 ppb). The levels of these contaminants are rising.

According to a preliminary assessment by senior scientist and selenium expert at the U.S. Forest Service, A. Dennis Lemly, Ph.D. the contaminated impoundments and cooling lake at Gibson present “a definite hazard to aquatic life.” Dr. Lemly stated

Waterborne selenium concentrations of 6-18 ppb would be expected to bioaccumulate to toxic levels in the diet of fish and aquatic birds (sufficient to cause reproductive impairment), particularly if selenium is predominantly selenite (which is likely in power plant effluents), and in a closed system.¹³

Waste generated at the site is also dumped in a Type II Restricted Waste Landfill. The landfill has an older portion built in the 1970's, which is unlined. The only boundary between the wastes and the local aquifer is 5-8 feet of local clay soil. The newer portion was constructed around 2002 and has a composite liner. A Type I landfill is currently being constructed to replace the existing landfill.

The site has 17 monitoring wells, 2 designated as upgradient wells and 15 designated as downgradient wells. The “upgradient” wells have detected high levels of boron, an indicator of CCW contamination. This should call into question whether the results from these wells can truly be considered upgradient. Downgradient wells show clear signs of CCW contamination with high levels of boron (ranging from 1.2-19 ppm) and arsenic (ranging from 17-71 ppb).¹⁴ The landfill is currently conducting assessment monitoring to determine the extent and direction of flow of the contamination.

Boron contamination was found in drinking water wells in the nearby town of East Mt Carmel while the company was testing the wells as part of a study on contamination from CCW impoundments. The results of the residential well testing are not publicly available. The power plant has accepted responsibility for the contamination and is supplying the town residents with bottled water. The bottled water is not being supplied through any official agreement, so it is unknown how long Duke will supply the

¹² Based upon discussions with John Guerrettaz, Senior Geologist of IDEM on 12/12/07

¹³ Email from A. Dennis Lemly, Ph.D., U.S. Forest Service to Lisa Evans, Earthjustice dated January 31, 2008.

¹⁴ See attached ground water monitoring results

water. The Indiana Department of Environmental Management is satisfied with the voluntary action taken by the plant and has not taken any official action with regard to the contamination of drinking water wells.

4. Clifty Creek Generating Station: Madison, IN

The Clifty Creek Generating Station, owned by Indiana Kentucky Electric Company (IKEC), was built in 1955. The plant generates 1,302 MW of power. The plant property sits directly adjacent to the Ohio River between the cities of Madison and Hanover, Indiana. The generating station also sits directly beside Clifty Falls State Park. The plant property includes the generating station, a loading dock for coal, CCW surface impoundments, and a Type III CCW restricted waste landfill.

Waste generated at the site is dumped into one of the site's impoundments or the Type III Restricted Waste landfill. The impoundments have an NPDES permit for discharges to the Ohio River. Under Indiana regulations, any impoundment with a NPDES permit is exempt from solid waste standards.¹⁵ The impoundments do not have liners or ground water monitoring. Surface water monitoring of the discharge from these impoundments has detected levels of aluminum and selenium that are above surface water standards for these contaminants, but the permit has "monitor only" requirements for these pollutants, so these levels have not triggered any enforcement action.

The landfill is located between the bluffs of the Ohio River and a narrow ridge of limestone. The landfill was built in 1992 on an old coal ash impoundment. The existing landfill does not have a liner. The landfill has three downgradient wells and one well located within the old fly ash impoundment. The site has no upgradient wells. All the wells are located on the southern end of the landfill. Citizens groups appealed the renewal permit for the landfill in 2002 and requested monitoring along the northern end of the landfill and a liner for future expansions. IKEC and IDEM have refused to make these changes, and the permit appeal is still being disputed in court.

The downgradient wells have detected statistical increases in boron. The latest ground water monitoring results show boron contamination up to 13.7 mg/L in downgradient wells.¹⁶ This level is more than 13 times the recommended drinking water standard as set forth in U.S. EPA, 2006 Edition of the Drinking Water Standards and Health Advisories.¹⁷ IKEC and IDEM contend that the contamination is flowing into the river where it is diluted. Ground water studies of the area, however, indicate that ground water is flowing out of the northern end of the landfill where it could potentially flow to the Madison municipal wells. The site clearly shows contamination from power plant wastes in downgradient wells and should be placed on the list of damage cases.

¹⁵ 329 IAC 10-3-1(8)

¹⁶ See attachment

¹⁷ See <http://www.epa.gov/waterscience/criteria/drinking/dwstandards.pdf>. See also, U.S. EPA, DRINKING WATER STANDARDS AND HEALTH ADVISORIES TABLE, June 2007, http://www.epa.gov/region09/water/drinking/files/dwsha_0607.pdf)

ILLINOIS

5. Grays Siding Neighborhood, Oakwood, IL

Approximately 380,000 tons of CCW generated by fluidized bed coal-fired boilers at the Bunge North America Corporation, which operates a dry corn mill in Dansville, Illinois, were dumped over a 10-year period in a ravine adjacent to the Grays Siding neighborhood, a rural subdivision of 30 homes that all draw their drinking water from ground water. The disposal was allowed under state law as a fill operation. State testing of the waste dumped at the site found lead levels 3.5-4 times the Illinois standard of 0.007 mg/L. Subsequent testing of the fill surface found high boron levels. High levels of lead, iron and manganese, above the state ground water standards, have also been found in two home wells in the adjacent Grays Siding neighborhood. Illinois (IPA) advised the residents in these two homes to stop drinking water from their wells, but no alternative source of drinking water has been provided. The only available source of drinking water for this neighborhood consists of private drinking water wells. In addition, the coal ash itself has been encroaching on residential property, and the residential community is adversely affected by fugitive dust from the site.

The Bunge dump site is also located next to Kickapoo State Park. Drainage from the site is flowing into Number Six Lake in the park. The lake is a designated fishing lake within the park, and has a boat ramp. Drainage from the lake goes into the Middle Fork of the Vermillion River, a designated National Wild and Scenic River.

In 2001, IEPA sent a notice to the owners and operators of the dump informing them that the site was an illegal open dump. The response of the owner/operators was to claim that the site was not a landfill, but a beneficial use site and that a building would be constructed on top of the coal ash. No building or impervious surface has ever been constructed on top of the "fill" site. The Illinois Environmental Protection Agency has attempted to install monitoring wells on-site and to have some of the ash removed, but they have been unable to take these actions due to the site owner declaring bankruptcy.

NEW MEXICO

6. Arizona Public Service, Four Corners Power Plant Surface Impoundments, Fruitland, New Mexico

The Four Corners Power Plant is owned and operated by Arizona Public Service. The 2040-megawatt electric generating plant is located about 30 miles west of Farmington, New Mexico on the Navajo Nation Reservation. Tens of millions of tons of coal combustion waste has been disposed in lined and unlined waste ponds since the 1963.

The Four Corners Power Plant produces about 2 million tons of coal combustion waste a year. Particulates are removed from Units 1, 2 and 3 using a wet scrubbing

process, and removed from Units 4 and 5 using combined large fabric filters and wet limestone scrubbers. Coal combustion waste from all five units includes fly ash, bottom ash and scrubber sludge. About half of the waste (from Units 1, 2 and 3) is slurried to waste ponds on the plant site. The remaining waste is returned to unlined strip mining pits for disposal.¹⁸

The APS waste ponds were designed to accumulate coal ash to a depth of 80 feet and then be covered and reclaimed. APS has disposed of approximately 55 million tons of coal over 230 acres. No ponds have yet been reclaimed; nor are there specifications for what the reclamation process would entail.¹⁹ Arizona Public Service has voluntarily placed monitoring wells around the ash ponds, but has refused to provide any data from the monitoring to any regulatory agency.

Ash disposal ponds 3, 4 and 5 have been used since the beginning of plant operation. These three ponds were originally unlined settling ponds. Water was decanted from the top of the ponds and discharged to an arroyo draining to the Chaco Wash. Construction on Pond 6 began in 1987. Like all of the earlier ponds at this time, Pond 6 is unlined. Ash pond banks were constructed using bottom ash covered with compacted shale on the upstream face to minimize flow-through. This compacted shale was keyed into low-permeable soil at the base of the bank. Water was decanted from the top of the pond back to the power plant for reuse. Pond 6 is surrounded by a French drain trench, designed to capture seepage prior to its migration to the Chaco Wash. Use of this pond ceased in 2005. It sits on top of bore holes with unknown plugging status. There is no date or specific plans for closure of the pond.

After seeps from the impoundments were discovered to be discharging to the Chaco Wash and following the finding of high levels of boron in the stream, EPA issued a 1997 compliance schedule that required construction of a groundwater intercept system around Ponds 3, 4 and 5 and conversion to lined evaporation ponds. During conversion these ponds were regraded. A synthetic liner was installed, possibly on top of underlying waste. A single liner was installed in Pond 5; Ponds 3 and 4 have double liners. Surface discharge of fly ash sluicing water was stopped in late 1979. The substitute system decants water from the top of the ponds and returns it to the plant for reuse in the scrubber system.

The publicly available monitoring data for the waste ponds, the groundwater and the surface water indicate damage is occurring from CCW. Levels of arsenic, cadmium and molybdenum measured in the ash ponds exceed drinking water standards by hundreds of times. Although ample monitoring wells have been installed and sampled around the ash disposal ponds, these data are held by Arizona Public Service and have

¹⁸ Information in this section based on telephone communication with Stephen Austin, Navajo Nation Environmental Protection Agency, May 2007, derived from his conversation with Carl Woolfolk with Arizona Public Service Company.

¹⁹ U. S. Environmental Protection Agency, *U.S. EPA Site Visit Report: Coal Combustion Waste Minefill Management Practice*, 2001.

not been released to any U. S. or Navajo Nation regulatory agency, despite the repeated requests by Navajo Nation EPA. On numerous occasions citizen and environmental groups have asked U.S. EPA to request this data from APS and to further investigate the site, but US EPA has refused.

Publicly available monitoring data permit the comparison of mean concentrations of stream samples downstream from CCW disposal ponds to unaffected sites.²⁰ A statistical test indicates a significant increase in concentrations of boron, copper, lead, mercury and zinc in surface water samples collected downstream from coal combustion waste disposal areas. This water is used for the watering of livestock by members of the Navajo Nation and may be used for drinking water.

In October 2007, an inspection of the waste impoundments by Navajo Nation EPA revealed that pond water was again seeping from the impoundments and surfacing on the banks of the Chaco Wash. Given the high level of pollutants, including arsenic, documented in the ash pond water, the presence of seeps entering the Chaco Wash may pose a substantial endangerment to health and environment.

In addition to the contamination of groundwater and surface water from the CCW impoundments, APS does not control fugitive dust resulting from its disposal activities. The arid climate and often windy conditions on the reservation make airborne ash from the uncovered and unreclaimed impoundments a serious problem. APS's decades-long failure to contain windblown ash has resulted in contamination of soil in areas surrounding the impoundments.

In 2006, members of the Navajo Nation as well as members of several environmental groups met with Assistant Administrator Susan Bodine to request that US EPA investigate the leaking and unlined surface impoundments and the fugitive dust problems at the Four Corners Plant. There was no response from EPA to that request. Again, the undersigned request that EPA obtain the relevant groundwater monitoring data from Arizona Public Service, determine the nature and extent of the contamination caused by the CCW impoundments, and secure the timely and safe closure of the inactive waste impoundments. The undersigned also request that this site be listed as a damage case.

PENNSYLVANIA

7. Allegheny Energy Hatfield's Ferry Power Station CCW landfill in Monongahela Township (Greene County)

The Allegheny Energy Hatfield's Ferry Power Station CCW landfill in Monongahela Township (Greene County) has contaminated surface water around the

²⁰ Downstream sites are 06CHACORIV01, 06CHACORIV03, 06CHACORIV05 and 06CHINDEWA15 as identified by Navajo Nation Environmental Protection Agency. Data for the 27 other Navajo Nation Environmental Protection Agency surface water sampling sites were used to characterize upstream conditions.

facility with elevated levels of boron and molybdenum. This Class II landfill has a single liner and a leachate collection system that directs captured leachate to a sedimentation pond and a passive wetland treatment system built in 2001. Treated landfill leachate is discharged into an unnamed tributary of Little Whiteley Creek. The creek discharges into the Monongahela River. The landfill is less than a quarter of a mile from the water intake for the Masontown Borough Water Authority public water system on the Monongahela River.

Annual monitoring has found that Little Whiteley Creek contains high levels of boron, which is characteristic of coal ash leachate. Levels are generally highest in the unnamed tributary to Little Whiteley Creek that receives discharges of treated landfill leachate and the portion of the creek downstream of the tributary. From 2001 to 2006, the average boron concentration in the tributary was 5.8 ppm, more than five times the EPA Health Advisory Level, or HAL of 1.0 ppm. The maximum concentration of 10.6 ppm was more than 10 times the HAL." Molybdenum concentrations were also elevated: the unnamed tributary to Little Whiteley Creek where the treated landfill leachate is discharged had an average molybdenum concentration of 295.7 ppb (approximately 30 times the 10 ppb Superfund Removal Action Level, or RAL), and a maximum concentration of 766 ppb, or nearly 77 times the RAL.

Public interest groups brought this facility to the attention of EPA at least six years ago in letter to EPA in 2002.²¹ EPA has offered no explanation as to why it has not investigated the site, despite the public availability of groundwater and surface water monitoring data. In view of the very high concentrations of boron and molybdenum in the creek, which the company has admitted is from CCW, EPA should classify this case as a proven damage case. Furthermore EPA should investigate the potential impact of the Hatfield Ferry CCW landfill on the Monongahela River and Masontown Borough public water system.

8. Cheswick Power Plant, Springdale Borough, Allegheny County, PA

The Cheswick power plant was constructed in 1970 by Duquesne Light Company. This 580-megawatt coal-fired power plant is now owned by Reliant Energy. Permitted sites for the Cheswick power plant include two fly ash landfills: Kissick and LaFever – as well as six, unlined surface impoundments. Additionally, the Cheswick power plant has been disposing of massive quantities of fly ash slurry via an injection system into the Harwick-Monarch mine complex since the early 1970's. This underground mine is approximately 7,000 acres.

The Cheswick power plant is located in Springdale Borough, Allegheny County, PA. Two municipal water sources are located downgradient from the landfills and surface impoundments: Cheswick and Springdale. The plant and the two municipal water sources are all located along the Allegheny River, north of Pittsburgh.

²¹ See February 8, 2002 letter to Dennis Ruddy, EPA, OSW re "Comments on Draft Assessment of Candidate Damage Cases Involving Fossil Fuel Combustion Wastes."

On June 10, 2004, an official from the Cheswick Water Treatment Plant raised concerns about the deterioration of the municipality's raw water wells. The original complaint expressed particular concern with "Manganese levels which are now at 3.7 ppm – the secondary MCL limit for Manganese is 0.05 ppm. The hardness levels have also risen above 300 ppm and the pH had dropped to 6.7."

A Water Department Manager noted that after significant rain events there would be a three to five day lull and then significant manganese spikes would occur in the source water for the public water system. The spikes were significant enough to make local treatment difficult, if not impossible. Interviews with PA DEP staff found that on occasion, the water at the Cheswick Municipal Authority turned black.

The Cheswick Water Authority suspected the fly ash impoundments at the Cheswick Power Plant and/or the massive tonnage of fly ash injected underground at the Harwick-Monarch Mine complex was to blame for the water contamination. In fact, the Cheswick Water Authority was so concerned for their water sources that they applied for a state grant: *Source Water Protection Grant*.

Following the original complaint phoned into the PA DEP, a series of emails was then sent throughout the agency detailing the concerns raised by the elevated manganese levels. Responses to those email messages revealed little to no effort on the part of the state agency to respond with any sense of urgency to this serious complaint from a public drinking water authority. In fact, other than generating a few idle comments from PA DEP staff and management personnel, nothing was done about this most serious situation.

Four months later another call from the Cheswick Water Authority noting similar complaints of water contamination from manganese. Once again a series of emails was circulated throughout the PA DEP.

- "Who would have the responsibility for this? I'm not sure. Apparently no one from here [PA DEP] or the County looked into this from back in June when Debbie sent the original email."²²
- "Potentially, something might have to be done to determine the extent of the problem and possible remediation efforts."²³
- "According to the Weekly Report, Waste Management just forwarded a permit application to Water Quality to permit additional fly ash disposal into mines in the area."²⁴

Staff in PA DEP Water Quality did attempt to coordinate a response to these complaints; however, file reviews did not provide documentation that any serious effort was ever undertaken.

²² Email message, October 15, 2004, 3:37 pm, from Sandra Anderson to PA DEP WQ staff

²³ Email message, October 15, 2004 11:04 am, from Deborah McDonald to WQ staff

²⁴ Id.

File reviews did determine that the Cheswick Water Authority did receive a state grant for Source Water Protection; however, it may be a false sense of security. The state will fund the placement of a sentinel well; however, full testing for metals will not be conducted.

Water Source Protection Grant awarded to Cheswick:

- Grant has been granted, however, plans are still underway.
- Plans will include: Create a sentinel well – drilled half-way between the Cheswick power plant impoundment area and the Municipal Water Authority well field.
- Sentinel well will be on downstream side of creek
- Testing for pH and water depth will be on-going
- Minitroll water monitoring device will be installed
- 1-2 baseline WQ samples will likely be taken
- No specific testing for metals will be required – this was removed from the grant, due to costs
- Some baseline metals testing will be conducted – staff believed only 1-2 months
- Cheswick water was instructed to keep records of other similar events
- File reviews did not contain any follow up testing by the Cheswick Water Authority or the PA DEP

Officials at the Cheswick Water Authority were concerned enough to seek a state water protection grant: one they thought would provide added assurances that any potential contamination was being monitored. File review documents did not contain any details on PA DEP actions - at the time of the complaints - until today. It is likely this serious contamination was never fully addressed.

As this is a public drinking water source – serious complaints have been reported on two separate occasions – and the PA DEP has not taken any additional testing or remediation efforts, we request the US EPA consider this a damage case and launch a full investigation.

9. Phillips Power Station – Cresswell Heights Municipal Water Supply, Beaver County, PA

In the late 1980s, several water supply wells of the Cresswell Heights Joint Municipal Water Supply in Beaver County, PA were contaminated with high levels of total dissolved solids (TDS) that were ruining hot water heaters and water that was 72 degrees (F). The PADEP compelled Duquesne Light to admit its ash lagoons across the border in Allegheny County, Crescent Township were responsible for the contamination due to the high temperature readings in the wells which matched the water temperature in the lagoons. A "Consent Order and Agreement" was signed that required the lagoons to be shut down. Considerable monitoring was done by the Water Supplier to document the damage being done to its wells as well as to its customers who were going through hot water heaters at the rate of one per year due to high TDS concentrations.

The Phillips Power Station, now owned by Reliant Energy, is closed. Monitoring data document noticeable differences between upgradient and downgradient water quality

around ash landfill on the grounds of the Power Station, with noticeably higher levels of chloride, sodium, and fluoride, and generally higher manganese, aluminum, sulfates, TDS and Specific Conductance at downgradient springs and wells. Levels of chloride are frequently exceeding the secondary Drinking Water Standards at downgradient wells MW-30 and MW-31 and high levels of sodium (exceeding 200 mg/L) are usually also found in such samples. There have also been several exceedances of the secondary Drinking Water Standard for fluoride (2.0 mg/L) as well as exceedances for secondary DWS for manganese and aluminum and many exceedances of the TDS secondary DWS of 500 mg/L in downgradient wells and springs. While there have been some elevated measurements at upgradient wells, they are much fewer. There is a general increase in lab and field pH of one full unit from values between 5 and 7 to values between 7 and 8 as one moves from upgradient to downgradient monitoring points reflecting an alkaline impact of the ash on the underlying groundwater.

In view of the enforcement action taken by PADEP (as evidenced by the Consent Order and Agreement) and the off-site exceedance of secondary drinking water standards, EPA should list this site as a proven damage case.

10. Mitchell Power Station Lagoons, Washington County, Pennsylvania

Quarterly monitoring data collected from two monitoring wells downgradient of an ash lagoon at the Mitchell Power Plant have measured levels of boron from 2 to nearly 7 times higher than EPA's Health Advisory of 1.00 mg/L in 2007 and much higher than boron levels in upgradient wells or at surface water monitoring points at the Mitchell Power Station in 2007. These wells are close to the northern end of the power plant premises at the most downgradient location for shallow groundwater close to where it would exit the property. Arsenic concentrations have been 1 to 2 times the DWS of 0.010 mg/L at downgradient wells and exceeded the highest concentrations for arsenic at upgradient points. Levels of nickel, molybdenum, and manganese have also been noticeably higher at downgradient than upgradient points in 2007.

The data suggests that Mitchell's ash lagoons are degrading the water in the alluvial aquifer under the Monongahela River. EPA should list this site as a damage case.

WEST VIRGINIA

Two CCW facilities in West Virginia that have caused serious water quality damage are the CCW impoundments associated with the Ohio Power Mitchell Plant and the Appalachian Power John Amos Plant.

11. The Ohio Power Mitchell Plant, Moundsville, West Virginia

The Conner Run Impoundment receives ash from the Ohio Power Mitchell Plant. It is approximately 124 acres, unlined²⁵ and discharges effluent to Conners Run of Fish

²⁵ Data request response from WVDEP to Margaret Janes of the Appalachian Center.

Creek of the Ohio River. The start date is unknown²⁶ but is prior to 1990. Conners Run has a site specific variance from the statewide numeric criteria for selenium and iron.

Except that site-specific numeric criteria shall apply to the stretch of Conners Run (0-77-A), a tributary of Fish Creek, from its mouth to the discharge from Conner Run impoundment, which shall not have the Water Use Category A and may contain selenium not to exceed 62 ug/l; and iron not to exceed 3.5 mg/l as a monthly average and 7 mg/l as a daily maximum. §47-2-7.2.d.16.1.

Note that West Virginia's statewide selenium numeric criteria for the protection of aquatic life are 5 ug/l chronic and 20 ug/l acute. §47-2-8.26. State regulations require that site specific numeric criteria be fully protective of designated and existing uses:

Site-specific numeric criteria. The Secretary may establish numeric criteria different from those set forth in Appendix E, Table 1 for a stream or stream segment upon a demonstration that existing numeric criteria are either over-protective or under-protective of the aquatic life residing in the stream or stream segment. A site-specific numeric criterion will be established only where the numeric criterion will be fully protective of the aquatic life and the existing and designated uses in the stream or stream segment. ... §47-2-8.4.

Despite this requirement there is substantial evidence that aquatic life uses of Conners Run are being seriously degraded due to selenium discharges associated with the Mitchell plant. Data from an April 2006 WVDEP report stated that Conners Run had an average fish tissue concentration of selenium of 24.4 ppm. See Power Point presentation at <http://www.wvdep.org/item.cfm?ssid=11&sslid=747>. A later WVDEP data set indicated an average selenium fish tissue concentration of selenium of 31.5 ppm.²⁷ These levels exceed EPA's proposed selenium fish tissue criterion of 7.9 ppm for the protection of aquatic life by 3 and 4 fold respectively. See <http://www.epa.gov/waterscience/criteria/selenium/>. These levels also greatly exceed threshold values of 4 ppm established by a fisheries selenium expert at the USDA Forest Service.²⁸ In addition, fish containing 31.5 ppm selenium should trigger a West Virginia human fish consumption advisory restricting consumption to just one meal a month.²⁹ Point sources related to the Mitchell Plant have essentially consumed much of Conners Run and include the ash slurry impoundment that receives waste from the power plant and an underground mine and refuse impoundment owned by McElroy Mining, WVDEP mining permits U003383 and O102392, that supplies coal to the plant.

Ohio Power holds Clean Water Act (CWA) NPDES permit WV0005304. Outlet 004 discharges effluent from the fly ash impoundment to Conners Run. The outfall has a

²⁶ Id.

²⁷ Id.

²⁸ Lemly, Dennis A. Selenium Assessment in Aquatic Ecosystems, A Guide for Hazard Evaluation and Water Quality Criteria. Springer. New York. 2002. p. 31.

²⁹ See West Virginia Sport Fish Consumption Advisory Guide, 2nd Ed., p. 72, <http://www.wvdhhr.org/fish/documents/WV%20FISH%20ADVISORY%20GUIDE%202ND%20EDITIO%20N%20rev%202007decTOC.pdf>

.062 mg/l max daily limit for selenium based on the site specific variance. Ohio Power exceeded the selenium limit at Outlet 004 in August of 2005, August and September of 2006 and in 2007 every month from May through December with values ranging from .063 to .254 mg/l with an average value of .118 mg/l. See

http://oaspub.epa.gov/enviro/pes_det_reports.detail_report?npdesid=WV0005304³⁰

While ground water monitoring required by this NPDES permit do not show exceedences of the West Virginia ground water selenium criterion, they do show moderate exceedences of the arsenic ground water criterion down gradient from the impoundment in March, July, September, and December of 2005; and March and June of 2006.³¹

McElroy Mining holds CWA NPDES permit, WV0020834, which regulates discharges from the mines listed above. The Company is required to monitor selenium discharges (but not arsenic) from Outlet 006 along with upstream and downstream water quality but no effluent limits are in force. The monitoring, though infrequent, indicate the outfall from the refuse impoundment is not discharging significant amounts of selenium to the receiving stream.³²

12. Appalachian Power DBA AEP – John Amos Plant, Putnam County, West Virginia

The Scary Creek Impoundment receives waste from the John Amos Plant. It is approximately 177 acres, unlined and was constructed in 1971.³³ The impoundment discharges to Little Scary Creek of the Kanawha River. Little Scary Creek also has a site specific variance from the statewide numeric criteria for selenium and copper.

Except the stretch between the mouth of Little Scary Creek (K-31) and the Little Scary impoundment shall not have Water Use Category A. The following site-specific numeric criteria shall apply to that section: selenium not to exceed 62 ug/l and copper not to exceed 105 ug/l as a daily maximum nor 49 ug/l as a 4-day average. §42-2-7.2.d.20.2.

At this site there is also substantial evidence that aquatic life uses are being seriously degraded due to the disposal of fly ash in the headwaters of the creek. WVDEP data from September of 2006 indicate an average selenium fish tissue concentration of selenium of 58.02 ppm.³⁴ These levels exceed EPA's proposed selenium fish tissue criterion of 7.9 ppm for the protection of aquatic life by 7 fold. See <http://www.epa.gov/waterscience/criteria/selenium/>. These levels also greatly exceed threshold values of 4 ppm established by a selenium expert at the USDA Forest Service.³⁵ In addition, fish containing 58.02 ppm selenium should trigger a West Virginia fish

³⁰ DMR date request response from WVDEP to Margaret Janes of the Appalachian Center.

³¹ Ground water monitoring reports as reviewed by Margaret Janes of the Appalachian Center 2/7/08.

³² DMR date request response from WVDEP to Margaret Janes of the Appalachian Center.

³³ Data request response from WVDEP to Margaret Janes of the Appalachian Center.

³⁴ Data request response from WVDEP to Margaret Janes of the Appalachian Center.

³⁵ Lemly, Dennis A. Selenium Assessment in Aquatic Ecosystems, A Guide for Hazard Evaluation and Water Quality Criteria. Springer. New York. 2002. p. 31.

consumption advisory restricting consumption to no more than 6 meals a year.³⁶

Appalachian Power holds CWA NPDES permit, WV0001074, that regulates discharges from the fly ash impoundment. Outfall 001 discharging to Little Scary Creek is required to monitor for selenium but has no effluent limits. In November and December of 2005 AEP had violations of then permit limits and discharged selenium at 73 and 63 ug/l respectively. In September, October and November of 2007, 16-27 ug/l were discharged from 001.³⁷ While these levels are below the site specific criterion for selenium at the site they exceed the statewide chronic aquatic life criterion and have led to significant bioaccumulation of selenium in the fish.

In summary, these two sites demonstrate that CCW disposal is causing serious degradation of the aquatic resources in West Virginia. We ask EPA to list these sites as CCW damage cases.

FLORIDA

Data documenting groundwater and surface water contamination at several coal-fired power plants was recently published in a report issued by the Florida Department of Environmental Protection (FDEP) entitled “Preliminary Evaluation of Analytical Data on Coal Combustion Products.”³⁸ The report reviewed surface water and groundwater data at three Florida plants, the Tampa Electric Company (TECO) Big Bend Facility, Seminole Electric Cooperative, and Gulf Power Plant Lansing Smith Facility. The data contained in the report indicate that the surface water and/or groundwater at all three of the Florida plants has been polluted with boron and metals by CCW disposal units, in some instances at levels far exceeding drinking water and water quality standards. The specific sites are described below.

13. Tampa Electric Company Big Bend Facility, Disposal Area 2 and Gypsum Storage Area, Ruskin, Hillsborough County, Florida

Groundwater monitoring data for the TECO Big Bend Facility indicate grossly elevated levels of boron, sulfate, TDS and metals in wells measuring impacts from the plant’s coal ash Disposal Area 2.³⁹ The FDEP report documented substantial exceedances of primary maximum contaminant levels (MCLs) in groundwater, including arsenic at 11 times the MCL, thallium at 8 times the MCL, and fluoride at 4 times the MCL. Exceedances of secondary MCLs (SMCLs) were documented at much greater levels. Boron in groundwater was measured at over 700 times the Florida guidance concentration, manganese was 240 times its SMCL, sulfate was 128 times its SMCL,

³⁶ See West Virginia Sport Fish Consumption Advisory Guide, 2nd Ed., p. 72, <http://www.wvdhhr.org/fish/documents/WV%20FISH%20ADVISORY%20GUIDE%202ND%20EDITIO N%20rev%202007decTOC.pdf>

³⁷ As reported on the EPA PSC website. These are the only months posted see http://oaspub.epa.gov/enviro/pcs_det_reports.pcs_tst?npdesid=WV0001074&rvalue=13&npvalue=7

³⁸ Florida Department of Environmental Protection, Solid Waste Section. *Preliminary Evaluation of Analytical Data on Coal Combustion Products*, (draft) March 18, 2008.

³⁹ *Id.* at 16.

aluminum was 25 times the SMCL, molybdenum was above the state guidance concentration, chloride was 40 times the SMCL, and TDS was 46 times the SMCL.⁴⁰

In addition, contaminants measured in groundwater at the Gypsum Storage Area at the Big Bend facility exceeded boron standards by almost 40 times, the SMCL for iron by 66 times, the SMCL for manganese by 11 times, the SMCL for sulfate by 4 times, and the SMCL for TDS by 5 times.

In view of the gross exceedances of both primary and secondary standards in groundwater impacted by CCW at the TECO Big Bend Facility, EPA should investigate the facility for its potential threat to health and the environment and list it as a damage case.

14. Seminole Electric Plant FGD Landfill, Seminole Electric Plant 1 & 2, Palatka, Putnam County, Florida

Groundwater and surface water data indicate gross exceedances of both primary and secondary drinking water and water quality standards at the Seminole Electric Cooperative FGD Landfill.⁴¹ Surface water data showed boron at levels over 1000 times its guidance concentration. Surface water data also revealed exceedances for aluminum at 4100 times the Class III fresh surface water CTL. In addition SMCL exceedances in surface water for chloride (over 30 times), sodium (over 3 times), sulfate (over 3 times) and TDS (over 8.5 times) were found.

Groundwater contamination at the Seminole FGD Landfill measured arsenic at 19 times the MCL and lead over 10 times the MCL. Boron was measured at over 40 times its guidance concentration, aluminum at over 20 times the SMCL and sulfate at over 3 times the SMCL.

In view of these massive exceedances of drinking water and water quality standards, EPA should investigate the Seminole Electric Cooperative FGD Landfill for its potential threat to health and environment and list this site as a damage case.

15. Gulf Power Plant Lansing Smith Facility, Panama City, Bay County, Florida

Groundwater monitoring data in the FDEP report for the Gulf Power Plant Lansing Smith Facility measured groundwater impacted by CCW landfills and ponds at the facility.⁴² The primary MCL for radium 226 and 228 was exceeded by over 13 times in groundwater wells south of the fly ash pond. In addition, SMCL exceedances measured south of the fly ash pond included aluminum at over 21 times the SMCL, chloride at nearly 10 times the SMCL, iron at over 300 times the SMCL, manganese at

⁴⁰ Id.

⁴¹ Id. at 20.

⁴² Id. at 16.

over 10 times the SMCL, sodium at nearly 10 times the SMCL, and TDS at 9 times the SMCL.⁴³

Given the exceedance in groundwater found south of the fly ash pond, EPA should investigate this site and list it as a damage case.

NORTH CAROLINA

According to Charlotte Jesneck of the Superfund Section, North Carolina Inactive Hazardous Sites Program, Division of Waste Management at the North Carolina Department of Environment and Natural Resources (NCDENR), there are at least seven coal-fired power plants listed as “inactive hazardous waste sites” in North Carolina. Ms. Jesneck stated that the reason most or all of the sites are listed is the presence of metals in groundwater, surface water, soil and/or sediments from coal combustion waste disposal. Most of the sites with known or suspected releases were placed on the state’s inactive hazardous waste site list in January 1988. According to a 2003 Report⁴⁴ to the North Carolina General Assembly on the Inactive Hazardous Sites Program by NCDENR, these sites⁴⁵ include:

1. Carolina Power and Light Company, Cape Fear Steam Station, SR 1916, Moncure, North Carolina (metals found in groundwater)
2. Carolina Power and Light Company, Mayo Steam Plant, HWY 501, Roxboro, North Carolina (metals found in soil)
3. Carolina Power and Light Company, Spruce Pine, Mountain Laurel Dr., Spruce Pine, North Carolina (unspecified known or suspected releases)
4. Carolina Power and Light Company, Sutton Steam Generating Station, Highway 421, Wilmington, North Carolina (metals found in sediment)
5. Carolina Power and Light Company, Weatherspoon Steam Generation Plant, 74 East, Lumberton, North Carolina (unspecified known or suspected releases)
6. Carolina Power and Light Company, Fayetteville Plant, Cumberland Rd and Owen Dr., Fayetteville, North Carolina (organics found in surface water, groundwater and soil)
7. Duke Power, Walnut Cove, Powerhouse Road, Walnut Cove, North Carolina.(unspecified known or suspected releases)

Documents relating to the above sites must be viewed at the state offices, which was beyond the scope of these comments. However, a site investigation was recently initiated at the following site and some voluntary groundwater monitoring data is available. While all seven sites should be investigated as damage cases, the site below should be immediate listed.

16.Progress Energy Sutton Steam Generating Plant (formerly Carolina Power and Light), Highway 421, Wilmington, North Carolina

⁴³ Id.

⁴⁴ Available at www.wastenotnc.org/sfhome/AnnualReport.doc.

⁴⁵ All sites are found on the Inactive Hazardous Waste Sites Inventory at http://www.wastenotnc.org/SFHOME/IHS_Site_List.pdf. Site listed as owned by Carolina Power and Light are now owned and operated by Progress Energy Inc.

The Sutton Steam Generating Plant site has been listed on the North Carolina state superfund list of inactive hazardous waste sites since 1988. Kim Caulk of NCDENR confirmed that fly ash from the power plant had contaminated groundwater at the site.⁴⁶ In January 2004, Progress Energy entered into a voluntary administrative consent agreement with the State of North Carolina to perform work at the site, but this agreement was terminated by the company in late 2007. The State was unable to give a reason for the company's termination of the voluntary agreement.⁴⁷

The Sutton site has been the subject of several EPA investigations under Superfund (CERCLIS No. NCD000830646). In March 1985, EPA conducted a Preliminary Assessment of the site. In September 1992, EPA conducted a initial site inspection, and in September 2000, EPA conducted an expanded site inspection.⁴⁸

Groundwater monitoring data submitted in 2005-2007 to NCDENR by Progress Energy for the Sutton Plant show high levels of arsenic, boron, iron and manganese in the groundwater.⁴⁹ Arsenic measured in groundwater in March 2007 was 29 times the MCL. In March of 2005 and 2006, the arsenic level was over 10 times and over 12 times the MCL, respectively. Boron in groundwater was almost 3 times the EPA Health Advisory Level, or HAL of 1.0 mg/L 2007 (measured at 2.9 and 2.69 mg/L). Iron levels were over 10 times their SMCLs in 2007 and 2006 and over 4.5 times the standard in 2005 (4.6 mg/L). Manganese levels were also elevated, at over 8 times the SMCL in 2007 (0.441 mg/L).

Given the recent primary and secondary exceedances in groundwater, the status of the site as a state Superfund site, the federal investigations of the site under CERCLA, and the administrative agreement with Progress Energy, EPA should list this site as a proven damage site. In addition, given the recent termination of the voluntary agreement to remediate the site, EPA should investigate the site to determine the threat to health and the environment and to determine the need for action under section 7003 of RCRA or section 106 of CERCLA.

⁴⁶ Conversation with Kim Caulk, NCDENR and Lisa Evans, Earthjustice, February 11, 2008.

⁴⁷ Id.

⁴⁸ See http://www.epa.gov/Region4/r4data/cerclis/ceraction_nc.txt.

⁴⁹ All data from NCDENR, submitted voluntarily from NC electric utilities.