SOUTHERN ENVIRONMENTAL LAW CENTER

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August 2, 2016

U.S. Environmental Protection Agency
EPA Docket Center
Water Docket
Mail Code 28221T
1200 Pennsylvania Avenue, NW
Washington, DC 20460

RE: Docket No. EPA-HQ-OW-2016-0145

Comments on National Pollutant Discharge Elimination System (NPDES): Applications and Program Updates; Proposed Rule

Dear Sir or Madam:

The Southern Environmental Law Center submits the following comments on the above-referenced rulemaking on behalf of the following organizations: Alabama Rivers Alliance, Southern Alliance for Clean Energy, Choctawhatchee Riverkeeper, St. Marys Riverkeeper, Chattahoochee Riverkeeper, Coosa Riverkeeper, Black Warrior Riverkeeper, Altamaha Riverkeeper, Cahaba Riverkeeper, Satilla Riverkeeper, One Hundred Miles, Georgia River Network, Cahaba River Society, James River Association, and Mobile Baykeeper.

We write in general support of EPA's proposed changes, although we have suggestions for clarifying and strengthening the proposed rules in places, as discussed below.

I. Administratively Continued Permits

We strongly support EPA's proposal to strengthen and make explicit its ability to address the rampant problem of administratively extended NPDES permits. This problem exists throughout the Southeast. State agencies are either too overtaxed or politically compromised to timely reissue NPDES permits, resulting in permit terms and conditions that have been outdated for an additional permit cycle, in many cases multiple permit cycles. These extensions have practical consequences, often allowing permittees to get away with lax limits or inferior pollution control technology for years after pollution problems are apparent, compromising water quality and threatening public health. The extensions also deprive the public of their statutory right to participate in the permitting process and voice concerns about pollution sources to permitting agencies, as well as to appeal reissued NPDES permits that may not meet the requirements of the Clean Water Act.

Below are specific examples taken from several states around the Southeast to illustrate the scope of the problem. These are intended to be representative and not exhaustive.

Tennessee

The Tennessee Valley Authority (TVA) owns and operates a number of coal-fired power plants in Tennessee. They are listed in the table that follows.

Facility	**NPDES permit number**	**Status**	**Original permit issue date**	**Most recent Permit issued date**	**Permit expired date**
Allen Fossil Plant	TN0005355	Admin continued	30-Apr-76	30-Nov-07	3-Aug-10
Bull Run Steam Plant	TN0005410	Expired	6-Oct-76	30-Sep-10	1-Nov-13
Cumberland Steam Plant	TN0005789	Admin continued	30-Apr-76	30-Nov-07	31-May-10
Gallatin Steam Plant	TN0005428	Effective	30-Apr-76	31-May-12	31-May-17
Johnsonville Steam Plant	TN0005444	Admin continued	30-Apr-76	9-Feb-11	29-Nov-13
John Sevier Fossil and Combined Cycle Plant	TN0005436	Effective	23-Aug-76	30-Sep-15	31-Dec-19
	TN0081141	Pending			
Kingston Fossil Plant	TN0005452	Admin continued	30-Apr-76	1-Sep-03	31-Aug-08

These plants harbor numerous on-site pollutants related to the disposal and storage of coal ash waste. However, none of the administratively continued permits have numeric effluent limitations for coal ash indicator pollutants for outfalls that process this waste. The only relevant limit is Total Suspended Solids (TSS). Some of these continued permits require monitoring and reporting of coal ash indicators (e.g., Bull Run), but have no limits. In contrast, the NPDES permit for the John Sevier plant was renewed in 2015 and includes numeric effluent limitations for coal ash pollutants arsenic and selenium.

These dated permits have real-world ramifications for water quality. Most of the ash ponds at TVA's coal plants are located directly adjacent to or literally within rivers and streams. The ash disposal areas at Bull Run are good examples; they are located within the normal pool elevation of the inundated Clinch River and Bull Run Creek. The closest drinking water intake, the West Knox Utility District, is located approximately a quarter mile downstream of the Fly Ash Pond and Stilling Basin. Monitoring of the Fly Ash Pond has documented consistent arsenic contamination in groundwater[1]. Plants such as the Cumberland plant have also had numerous

[1] *See* https://www.southernenvironment.org/uploads/words_docs/2016-07-08_SELC_et_al_Comments_on_Ash_Impoundment_Closure_FEIS_Final.pdf <last visited August 2, 2016>.

surface water exceedances, as detailed in a recent 60-day notice letter[2] regarding that plant. SELC has published a map of drinking water intakes in Tennessee and Alabama that are downstream of TVA's coal ash ponds.[3] These intakes serve 3 million people in total.

Groundwater is contaminated downgradient of nearly all of TVA's coal ash disposal areas for which we have data. In the final EIS for ash impoundment closure, TVA admitted the ash is buried in groundwater in ash ponds at the Kingston, Bull Run, Colbert and Widows Creek plants, in violation of its current NPDES permits[4].

Because of these administratively continued permits, TVA has been able to continue discharging toxic coal ash pollutants from outfalls without any numeric effluent limitations apart from TSS. If local citizens had had the opportunity to participate in a permit renewal process, they could have argued that the state needed to establish technology-based effluent limitations (TBELs) for indicator pollutants during normal operations and during dewatering.[5]

Alabama

Like Tennessee, Alabama has a number of active and retired coal-fired plants with expired NPDES permits, operated by Alabama Power, TVA, and PowerSouth. They are listed below. We have the same concerns with surface and groundwater contamination at these sites as detailed above.

Plant	**NPDES Permit No.**	**Expiration Date**
Alabama Power – Barry	AL0002879	10/31/2013
Alabama Power – Gadsden	AL0002887	01/31/2008
Alabama Power – Gaston	AL0003140	06/30/2012
Alabama Power – Gorgas	AL0002909	09/05/2012
Alabama Power – Greene County	AL0002917	09/30/2012
Alabama Power – Miller	AL0027146	01/31/2012
TVA – Colbert	AL0003867	05/31/2010
TVA – Widows Creek	AL0003875	03/31/2010
PowerSouth – Lowman	AL0003671	02/28/2010

See also https://www.tva.com/file_source/TVA/Site%20Content/Environment/Environmental%20Stewardship/Environmental%20Reviews/Closure%20of%20Coal%20Combustion%20Residual%20Impoundments/Ash%20Impoundment%20Closure%20Draft%20EIS-Part%201.pdf <last visited August 2, 2016>.

[2] *See* https://www.southernenvironment.org/uploads/news-feed/60_Day_Notice_Cumberland_Fossil_Plant.pdf <last visited August 2, 2016>.

[3] *See* https://www.southernenvironment.org/news-and-press/news-feed/new-map-shows-drinking-water-supplies-for-2.3m-in-tennessee-at-risk-from-tv <last visited August 2, 2016>.

[4] *See* https://www.southernenvironment.org/news-and-press/press-releases/groups-oppose-tvas-coal-ash-cover-up-plan-as-public-comment-period-ends <last visited August 2, 2016>.

[5] In July 2016, the State of Tennessee and the Tennessee Valley Authority settled several environmental groups' appeals of permits issued at Kingston Fossil Plant, Bull Run Fossil Plant, and Gallatin Fossil Plant. These appeals had been pending for several years. The lag in the state permit appeal process exacerbates the problem of allowing plants to operate under administratively continued permits.

Additionally, a number of Municipal Separate Storm Sewer System NPDES permits are administratively continued. One glaring example is the permit for the Storm Water Management Authority (SWMA), which oversees stormwater pollution in metropolitan Birmingham. NPDES Permit No. ALS000001 has been expired since 2006. These permits are crucial to keep up to date in order to make sure that they have the most stringent requirements for construction and post-construction best management practices, as well as other limits. Stormwater pollution continues to affect numerous streams in the Birmingham area, many of which are listed as impaired or are covered by a Total Maximum Daily Load (TMDL).

Georgia

As with Tennessee and Alabama, many of the NPDES permits at both active and retired coal-fired power plants in Georgia are expired and have been administratively extended. Sites operated by Georgia Power include:

Plant	**NPDES Permit No.**	**Expiration Date**
Bowen	GA0001449	06/30/2012
Branch[6]	GA0026051	02/28/2010
Hammond	GA0001457	06/30/2012
McIntosh	GA0003883	05/31/2004
Scherer	GA0035564	11/30/2006
Wansley	GA0026778	08/31/2011
Yates	GA0001473	08/31/2011

In addition to these plants, Plant Crisp, owned by the Crisp County Power Commission, has an NPDES permit that expired 8/31/10.

The administrative continuances of these permits have robbed Georgia residents of the ability to raise concerns that the permits are too lax. The permitted discharges generally do not apply limits for heavy metals common in coal ash, nor do they require monitoring or testing for heavy metals. For example, Plant Hammond's NPDES permit requires monitoring only for total suspended solids and oil and grease from its ash ponds' emergency overflow discharges and the ash transport water discharge. In addition, there is no requirement to monitor flow at the emergency overflow discharges and for the ash transport discharge; only annual flow characterization information is required. At Plant Branch, Georgia Power had to bypass its emergency overflow and pump wastewater into Lake Sinclair earlier this year, with no required testing for coal ash metallic constituents. Similarly lax requirements appear in NPDES permits for other coal/former-coal sites (e.g. Plant Bowen). While the permit for Plant McIntosh does contain a term for heavy metals in the ash transport discharge (including arsenic, cadmium, chromium, copper, iron, lead, mercury, nickel, selenium, and zinc), it only requires annual testing. If given the chance, local citizens would have long ago been able to explain the importance of having more frequent regular monitoring and actual effluent limits on these pollutants for all of the above-listed permits.

[6] Although Plant Branch is no longer operating, legacy coal ash remains on site.

Separately, the NPDES permit for the Rayonier pulp processing plant in Jesup, GA expired in April 2006. The Director of Georgia's Environmental Protection Division administratively extended the permit and the extension lasted through December 29, 2015. The new NPDES permit is currently being challenged by the Altamaha Riverkeeper as being insufficient under the Clean Water Act. Much of the data documenting water quality problems in the Altamaha River (the plant's receiving water), was taken during the administrative continuance. In addition, an expert has testified in the permit challenge that the technology being employed at the plant is dated compared to similar facilities. The new permit also is conditioned on ongoing studies that will take several years to complete, and which would have been completed by now if the permit had been renewed in a timely fashion. All this points to the fact that the permit renewal process should have happened years ago. Concerned citizens should have the right to raise questions and appeal permits in 5-year increments, as the Clean Water Act directs.

Virginia

The Chesterfield Power Station illustrates the importance of timely renewal of NPDES permits, and the problems that recur or worsen during the periods of administrative NPDES permit continuances.

The Chesterfield Station is located on and discharges to a stretch of the James River, and an old oxbow of the river known as Farrar Gut, that are both highly utilized for recreational activities. The Dutch Gap Boat Landing is on the James River a few hundred yards downstream of two outfalls, and the Dutch Gap Conservation Area allows opportunities for boating, fishing, hiking, biking, horseback riding, camping, and even includes a nature program for children. These activities occur in the vicinity of the ash ponds and discharge points. The tidal lagoon in and around Farrar Gut is home to fish, waterbirds, and other wildlife.

The station currently operates under a permit, VPDES Permit No. VA0004146, that has been administratively extended since December 9, 2009. A draft permit has only recently been issued but has yet to be finalized. The current administratively extended NPDES permit has no limits or monitoring requirements that have been subsequently imposed pursuant to EPA's coal combustion residuals (CCR) rule. The current permit also does not implement wastewater treatment technology or impose TBELs derived from best professional judgment that we have advocated for use at other sites. These measures would result in levels of metals in the discharge that are far lower than the limits proposed even in the pending draft permit. For example, had the permit been reissued in 2009, SELC and others could have advocated for a routing of ash pond toe drain discharge and other wastewaters to a treatment system capable of reducing pollution to more acceptable levels. Implementation of TBELs would also negate the need for mixing zones for this facility.

The Fish Consumption Use in the James River is impaired by PCBs. "[N]o observed concentrations were reported" during testing of all outfalls, but according to the draft permit fact sheet "[t]he permittee has not performed the voluntary low level PCB monitoring (method 1668) for the pending TMDL development." The facility is considered a Significant Chesapeake Bay wastewater discharge, and is subject to wasteload allocations under the Chesapeake Bay TMDL

for total nitrogen (TN), total phosphorous (TP), and TSS. Screening level exceedances were found in fish tissue in the James River for mercury and arsenic, and in sediment for mercury.

Surface water testing for the plant's Corrective Action Plan submitted in 2007 and 2012 showed arsenic, barium, chromium, copper, iron, manganese, molybdenum, vanadium, zinc, ammonia, chloride, and sulfate above the relevant background concentrations. Testing further showed iron and manganese above the relevant Virginia Water Quality Standards for public water supply, and hexavalent chromium in the surface water above the Virginia Water Quality Standards for aquatic life. There is also documented groundwater contamination around the ash ponds.

The Chesapeake Bay population of the Atlantic Sturgeon is listed as federally endangered. A segment of the James River encompassing the Chesterfield Power Station is proposed as designated Critical Habitat for the sturgeon. The current draft permit proposes to study impingement issues through the permit cycle. Had the permit been reissued in 2009, this could have been done last permit cycle, and the results used to minimize aquatic organism impingement at the intake. Moreover, the plant's permitted thermal discharge relies on a variance based on a flawed 2003 study. The thermal discharge also relies on a four-mile mixing zone – the entire length of Farrar Gut. This would be concerning in any waterbody, but is especially so here, where Farrar Gut is heavily utilized for recreation and fishing.

North Carolina

H.F. Lee Plant

The NPDES permit for Duke Energy's H.F. Lee plant expired in 2013. There are numerous problems at the site that had been ignored for years and were not addressed in the current expired permit. As a result of litigation by the Southern Environmental Law Center and its clients, Duke Energy has now been ordered in a state enforcement action to excavate all the coal ash at H.F Lee to dry, lined storage. But under the cleanup schedule, it will continue discharging under an NPDES permit for years to come. In addition, U.S. EPA has secured guilty pleas by Duke Energy for criminal violations of the Clean Water Act that include documented, unpermitted discharges to waters of the United States at H.F. Lee – which were ignored by state regulators for years. We raised these concerns years earlier in comments on a 2013 draft permit that was never issued, but no action was taken to address them at that time.

The unlined coal ash lagoons at H.F. Lee have leached toxic metals and other contaminants from the coal ash into the groundwater, including arsenic of 640 ug/L, or 64 times the applicable standard, along with high levels of chromium and other pollutants. The NC draft permit from 2013 claimed that the unlined, leaking coal ash pit at H.F. Lee "has been determined by NC to be [Best Available Technology] for this facility." This claim is absurd on its face, but could not be challenged because the permit was never issued, and Duke Energy was allowed to continue operating its leaking coal ash pits.

Despite years of monitoring data showing that the Lee coal ash pits have leaked numerous toxic substances, the current, expired permit – like the other expired NPDES permits at NC coal ash sites -- lacks technology-based effluent limitations for toxic pollutants from coal ash including

arsenic, hexavalent chromium, and lead. The permit imposes no treatment or limits for any of these substances, and lacks even monitoring requirements for chromium and lead.

By contrast, a newly-issued permit for the Sutton coal ash facility in Wilmington, NC, does contain technology-based effluent limitations[7]. These limits demonstrate what available technology can accomplish, yet they are not being applied at other coal ash sites in North Carolina.

Asheville Plant

Asheville is currently operating under a permit that was issued on Nov. 16, 2005 and expired on Dec. 31, 2010. The permitted outfall only has limits for oil and grease, TSS, pH, and mercury (which only kicked in after the flue gas desulfurization (FGD) system was up and running). There is an internal FGD outfall with no limits at all.

The administrative extension is problematic for several reasons. First, in 2012 North Carolina finalized a statewide mercury TMDL. Because the permit was operating under an administrative extension in 2012, the permit could not be modified to incorporate the requirements of the TMDL. The mercury limits in the permit still exceed what is required by the TMDL. We understand the Asheville plant to be one of the few sites in the state whose discharge would have likely violated the TMDL limits necessitating additional treatment of the effluent. Inability to comply with the TMDL is probably a significant reason the permit has not been renewed.

Second, North Carolina began adding groundwater monitoring requirements to NPDES permits around 2010. The Asheville plant is complying with the monitoring requirements but those requirements have not been formally added to the permit because the permit has been expired. The Asheville plant has problems with groundwater contamination and has been required to provide drinking water to 2 or 3 homes adjacent to the plant because of the spread of groundwater contamination. The plant has also purchased additional property in recent years as the plume has expanded.

The 2005 permit converted a water of the U.S. into the plant's permitted outfall. In other words, instead of having to meet water quality standards in the water of the U.S., the permit purported to allow Duke to discharge wastewater through the stream as long as water quality standards were met in a mixing zone in the larger French Broad River. We brought this to Duke's attention and they moved the discharge out of the water of the U.S. by constructing a completely new outfall location. While that was a positive development, Duke moved the outfall illegally – without seeking a permit major modification. All of these reasons point to the need for EPA to take action to move NPDES permits forward after they have expired.

Other North Carolina Plants

Many of the other North Carolina coal ash sites owned and operated by Duke Energy have long-expired NPDES permits:

[7] *See* https://deq.nc.gov/press-release/deq-issues-critical-permit-coal-ash-excavation-sutton-plant-near-wilmington <last visited August 2, 2016>.

- Mayo (Roxboro, NC) – expired since 2012
- Roxboro (Semora, NC) – expired since 2012
- Weatherspoon (Lumberton, NC) – expired since 2014
- Allen (Lake Wylie, NC) – expired since 2015

Every one of these sites has groundwater contamination and unpermitted discharges to waters of the United States from leaking, unlined coal ash lagoons. Yet by failing to update and tighten effluent limitations and require closure plans that will not continue polluting state waters, the state has allowed these sites to continue their illegal discharges of pollutants for years.

In theory, most of the coal ash discharge from permitted outfalls would be addressed by the new Effluent Limitation Guidelines which require zero discharge from bottom ash and fly ash transport water and put limits on FGD sludge (with compliance as soon as practicable after 2018 and no later than end of December 2023). However, the ELGs do not address legacy wastewater or ongoing contamination through seeps and groundwater.

Recommendations for Administrative Continuances

We strongly support EPA's efforts to rein in the problem of expired permits being administratively continued. We think that EPA should have the ability to re-designate such permits as "proposed" at any time after permit expiration, or that the designation be made automatic so as to allow for timely public review and comment. EPA's proposal to wait two years or five years before even invoking its ability to address expired permits is unacceptably too long.

We concur with EPA's criteria for identifying "environmentally significant" permits suitable for such redesignation, which include:

- New or revised water quality standards;
- New or revised effluent limitations guidelines;
- Potentially significant impacts to an impaired or threatened waterbody;
- Potentially significant impacts to a drinking water resource;
- National program priorities (*e.g.*, Combined Sewer Overflow, Concentrated Animal Feeding Operations);
- Protection of threatened or endangered species;
- Significant changes to a facility's operations, treatment, or effluent characteristics; or
- Public concerns or environmental justice issues.

In addition, we would include potentially significant impacts to waters used for recreation, along with potentially significant impacts to Tier 2.5 and Tier 3 waterways, on the list. All of these factors should be explicitly included in the regulations, along with a provision that enables members of the public to help identify outdated permits that are "environmentally significant" on a case-by-case basis. Finally, just because EPA elects not to redesignate an expired permit as "proposed," or does not deem a permit "environmentally significant," should not be interpreted

as a tacit acceptance of the status quo by EPA. The regulations must explicitly include this caveat.

More broadly, EPA should allow for public participation should it decide to object to a permit. EPA's proposal would only include notice to the permittee and the state permitting agency. The public should not be left out of this important step in the permitting process.

II. EPA's Existing Review of States' Draft NPDES Permits

While EPA has not included this topic in its proposal to address administratively continued NPDES permits, we urge EPA to take this opportunity to address a related problem that occurs in our region. A state agency will submit a draft NPDES permit to EPA for review, and EPA will take no action on the draft permit, often because of resource constraints.[8] When the state agency issues a final NPDES permit (often identical to the draft permit), the state agency will then take the view that EPA has "approved" the permit simply because EPA did not object to or comment on the permit. A brief from the Alabama Department of Environmental Management (ADEM), submitted during an NPDES permit challenge, illustrates the problem. *See* Post-Hearing Brief with Findings of Fact and Conclusions of Law, *Black Warrior Riverkeeper v. ADEM and Shepherd Bend, LLC*, No. 09-04, 2011, at 19 ("EPA received the draft Permit and did not comment on it. ADEM takes this absence of a response to mean EPA's concurrence with the draft permit.").

We strongly recommend that EPA add language to its NPDES regulations that explicitly state that the fact that EPA does not comment on a draft permit does not equate to an acceptance of the permit.

Furthermore, even where EPA does object to draft NPDES permits, there is often no follow-through once a final permit is issued. Indeed, states can interpret EPA's silence on a final NPDES permit as a rescinding of previous objections, whether or not that is EPA's intent. We recommend that EPA clarify its position on this situation to avoid confusion. Similarly, we suggest that states be required to be explicit about how permit revisions are responsive to EPA objections.

III. Use of Best Available Data

We support the changes proposed in 40 C.F.R. § 122.21 related to accurate information as to facility location, using latitude and longitude to the nearest second. However, even seconds can vary depending on one's location within the United States. EPA should use a more precise measurement accuracy requirement for individual outfall locations, such as "within 10 feet."

Throughout this rulemaking, EPA proposes changes that share the goal of having consistent and usable data where possible in the course of permit applications and permit evaluations by state permitting agencies. We request that EPA clarify that acceptable and usable data can include

[8] Indeed, in Alabama, EPA's lack of resources complicates the agency's ability to oversee the state's permitting program generally. This situation exists throughout the Southeast.

sampling and other data submitted by third parties (assuming that data complies with a state's quality assurance/quality control requirements). Many states in our region have extensive third-party monitoring networks that supplement (and in some cases supplant) the dwindling resources that agencies have to monitor water quality. This information is extremely important in the NPDES permitting context, yet many state agencies resist or discount consideration of such data, or ignore it altogether.

Furthermore, fact sheet quality varies across our region, and can even vary from permit to permit within the same state. We support EPA's efforts to make fact sheets fully accessible to interested members of the public, and to contain complete and accurate information. If any information is summarized, the public should also have clear access to the original data from which the summary has been drawn. EPA should include an explicit statement in the regulations that the best information available be used in all facets of a permit application.

IV. Public Notice

We support EPA's proposed expansion of public notices of draft NPDES permits to include posting on publicly-available websites. *See* 40 C.F.R. § 124.10(c). However, the existing requirement to post notices in a newspaper should not be eliminated. There are still significant numbers of interested and concerned citizens in our region and around the country who do not have ready access to the internet, and agencies should be able to publish notice both on the web and in a newspaper with minimal effort.

This notice requirement should apply to all NPDES permits, including general permits and non-major permits. Public notice should encompass draft NPDES permits and public hearings, and should be expanded to include issuance of final NPDES permits.

We also recommend that EPA clarify that permit revisions that result in more lax monitoring requirements are not "minor modifications" and therefore warrant public notice and comment. Under 40 C.F.R. § 122.63, only those modifications requiring "more frequent monitoring or reporting by the permittee" are considered "minor modifications." However, some states in our region, such as North Carolina, are revising NPDES permits to reduce monitoring frequency without giving public notice. While we believe the law is clear that this is improper under the Clean Water Act, EPA should take this rulemaking as an opportunity to insert clarifying language into the NPDES regulations.

Conclusion

Thank you for your consideration of these comments. Please contact me if you wish to discuss these issues further.

Sincerely yours,

Gilbert B. Rogers
Senior Attorney
SELC Clean Water Program Leader

cc: Erin Flannery-Keith, U.S. EPA
James Giattina, U.S. EPA Region 4 Water Protection Division

ATTACHMENT

BEFORE THE
ENVIRONMENTAL MANAGEMENT COMMISSION
OF THE
ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

BLACK WARRIOR RIVERKEEPER, INC., Petitioner,	)	
v.	)	DOCKET NO. 09-04
THE ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT, Respondent,	)	
SHEPHERD BEND, LLC, Intervenor.	)	

THE ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT'S POST-HEARING BRIEF WITH PROPOSED FINDINGS OF FACT AND CONCLUSIONS OF LAW

COMES NOW, the Alabama Department of Environmental Management ("ADEM"), by and through undersigned counsel, and submits this brief with proposed findings of fact and conclusions of law for the Hearing Officer's consideration pursuant to ADEM Admin. Code r. 335-2-1-.14(16).

I. PROCEDURAL HISTORY

ADEM issued NPDES Permit No. AL0079162 ("the Permit") to Shepherd Bend, LLC ("Shepherd Bend") on July 21, 2008. On December 22, 2008, Black Warrior Riverkeeper, Inc. ("Riverkeeper") filed a Request for Hearing with the Alabama Environmental Management Commission ("AEMC" or "the Commission") to contest ADEM's issuance of the Permit. Initially, Julia Weller was appointed to serve as Hearing Officer in the matter. ADEM moved to

dismiss Riverkeeper's appeal on the ground that it was untimely filed. Shepherd Bend filed a Motion to Intervene, which was granted on February 24, 2009. Also on February 24, 2009, Hearing Officer Weller held that Riverkeeper's appeal was "equitably tolled" and that Riverkeeper's appeal was filed within thirty days following Riverkeeper's notification of the Permit's issuance. In March 2009, ADEM, Riverkeeper, and Shepherd Bend filed respective Motions for Summary Judgment. On April 17, 2009, Hearing Officer Weller granted ADEM's and Shepherd Bend's Motions for Summary Judgment. Hearing Officer Weller's July 31, 2009 memorandum recommendation urged the AEMC to grant ADEM's and Shepherd Bend's Motions for Summary Judgment and to dismiss the appeal on the basis there was no actual injury in fact and Riverkeeper lacked standing. On August 10, 2008, Riverkeeper filed an objection to Hearing Officer Weller's Recommendation, to which Shepherd Bend and ADEM responded. The AEMC heard oral arguments at its October 16, 2009 meeting, and issued an Order returning the proceeding to a Hearing Officer to determine: (1) whether Riverkeeper is aggrieved by ADEM's administrative action, and (2) whether there is preponderating evidence that ADEM's administrative action authorizes discharges of pollutants which, upon discharge, will either cause or contribute to a detectable contravention of State water quality standards.

On November 18, 2009, Jim Hampton was appointed to serve as Hearing Officer in the remanded appeal. On May 4, 2010, Riverkeeper filed a Motion for Determination of Permit Expiration, to which ADEM and Shepherd Bend responded. The Hearing Officer denied Riverkeeper's Motion on September 3, 2010. On December 1, 2010, Shepherd Bend filed Objections to Testimony and a Motion in Limine. On December 14, 2010, ADEM filed an Alternative Motion in Limine, Motion to Stay Proceedings, and/or Motion to Strike Issues Relative to the Birmingham Water Works Board's ("BWWB") Statutory Rights, to which Riverkeeper responded and Shepherd Bend joined and responded. Shepherd Bend's and

ADEM's respective Motions were denied on January 28, 2011. On February 14, 2011, Riverkeeper filed a Motion to Strike and/or Limit Expert Testimony of James P. Martin, which was denied. A hearing was held on February 22-24, 2011. At the hearing, ADEM renewed its Alternative Motion to exclude as irrelevant evidence related to the design and construction of water pollution control impoundments at Shepherd Bend and evidence related to the BWWB's rights in the Mulberry Fork.

II. SUMMARY OF THE EVIDENCE

This case arises out of the Department's issuance of NPDES Permit No. AL0079162 to Shepherd Bend for discharges to waters associated with the Shepherd Bend Mine in Walker County, Alabama. The evidence in this case came before the Hearing Officer in the form of testimony presented by fifteen witnesses, all under oath and subject to cross-examination. In addition, the parties presented documentary evidence that was properly marked and admitted into the record.

Testimonial Evidence

Without unnecessary detail, the testimonial evidence may be summarized as follows:

1) Black Warrior Riverkeeper's Witnesses

a. Nelson Brooke – Mr. Brooke testified he was hired as the Black Warrior Riverkeeper in 2004, and he described his duties as Riverkeeper. (2/22 Tr. 18-20, 33). He described his familiarity with the Black Warrior River and the Mulberry Fork of the Black Warrior River. (2/22 Tr. 20-22). Mr. Brooke testified there are water quality issues in the Mulberry Fork in the vicinity of the Shepherd Bend mine site. (2/22 Tr. 24-26). Mr. Brooke named members of Riverkeeper who use the part of the Mulberry Fork near the Shepherd Bend mine. (2/22 Tr. 26-27). Mr. Brooke testified Riverkeeper submitted comments on Shepherd Bend's permit. (2/22 Tr. 27). He testified that Riverkeeper has an interest in upholding the uses of the Black Warrior River throughout the watershed. (2/22 Tr. 30). He testified he is not an engineer, Ph.D., or chemist. (2/22 Tr. 31). He testified he has done water sampling, but has not provided it to anyone for purposes of this case. (2/22 Tr. 32).

b. Todd Hyche – Mr. Hyche testified he lives in Walker County on the River near one of Shepherd Bend's discharge points, and he has used the River recreationally

his entire life. (2/22 Tr. 34). He testified he has been a member of Riverkeeper since 2006. (2/22 Tr. 35). Mr. Hyche testified he intends to continue using the Mulberry Fork but his use will be impacted by the Permit. (2/22 Tr. 35-36). He testified he has concerns about drinking well water with a mine nearby. (2/22 Tr. 36). He testified he has a bachelor's in engineering, but he is not a P.E., a mining engineer, an environmental engineer, and has never designed a pond for a mine. (2/22 Tr. 37-38).

c. Elisa Mejia – Ms. Mejia testified she is a registered nurse who lives both in Birmingham and at her property on the Mulberry Fork, which is about a two-mile canoe ride from the Shepherd Bend mine site. (2/22/ Tr. 39-41). She testified she has been a member of Riverkeeper since 2005 (2/22 Tr. 40-41). She testified regarding her uses of the Mulberry Fork and Burnt Cane Creek, and that she hopes to continue those uses in the future. (2/22 Tr. 41). Ms. Mejia testified she is concerned about the mine discharges and their effects, and she testified, over objection, as to how her uses would be affected by the Permit. (2/22 Tr. 42-43). She testified she had done no studies or collected any data to determine the health effects of mines. (2/22 Tr. 44-45).

d. Randy Palmer – Mr. Palmer testified he is a certified public accountant, he lives in Tuscaloosa, and he has been a member of Riverkeeper since 2005 or 2006. (2/22 Tr. 46-47, 51). He testified he has lived on or around the Warrior River his whole life, he uses it recreationally, and he wants to continue using it as long as it's safe. (2/22 Tr. 47-48). Mr. Palmer testified he has seen the depth of sloughs reduce over the years. (2/22 Tr. 48). He testified regarding his concerns with Shepherd Bend's Permit. (2/22 Tr. 49). Mr. Palmer testified that he is concerned about raw sewage in the river and the effects of the pollutants on the fish. (2/22 Tr. 50).

e. Eugenia McWilliams – Ms. McWilliams testified she lives in Birmingham and has property on Burnt Cane Creek below the Red Star Mine. (2/22 53, 56). She uses the Mulberry Fork frequently for recreation. (2/22 Tr. 53). She testified she has been a member of Riverkeeper since 2004 (2/22 Tr. 54). She testified she has seen pollution running off the mine sites. (2/22 Tr. 54). Ms. McWilliams testified she has concerns about Shepherd Bend's Permit, but is not sure that it will impact her use of the River. (2/22 Tr. 55).

f. David Muncher – Mr. Muncher testified he is the president of Shepherd Bend, LLC. (2/22 Tr. 60). Mr. Muncher testified he is a licensed professional engineer who has spent the majority of his career working in the surface coal industry, and he signed Shepherd Bend's NPDES permit application. (2/22 Tr. 61). He testified he was aware of the Permit's provision regarding automatic expiration. (2/22 Tr. 63). He testified he understands the definition of construction in the ADEM regulations, and that Shepherd Bend did all it could do in the Permit time frame. (2/22 Tr. 65). Mr. Muncher testified regarding activities Shepherd Bend undertook within eighteen months of Permit issuance. (2/22 Tr. 67-69; Ex. 159). Mr. Muncher testified that Shepherd Bend first acquired surface rights to a small portion of the mining property in April 2010. (2/22 Tr. 72-73). He testified that

it is his experience that a mine does not construct on-site until they receive an ASMC permit that is also accepted by ADEM, but that they cannot submit an application for an ASMC permit until they have acquired a surface interest in the property. (2/22 Tr. 80-81). He testified regarding activities that can be conducted on site with property rights but without an ASMC permit. (2/22 Tr. 81-82). Mr. Muncher testified regarding his role in preparing the Shepherd Bend's NPDES permit application and particulars of the permit application. (2/22 Tr. 86-100). He testified regarding the numbers in the chart on page 7B of the permit application. (2/22 Tr. 89-100; 109-110; Ex 179). He testified the ponds are expected to only discharge during rainfall events, not during dry weather. (2/22 Tr. 92). He testified regarding a Corps of Engineer map Shepherd Bend used in preparing its NPDES permit application, which is a method for estimating average stream flows. (2/22 Tr. 102-108; Ex. 172). He testified that Shepherd Bend used data from the Red Star, Quinton and Horse Creek mines in preparing its NPDES permit application, because those mines are significantly similar in locale, terrain, geology, and coal seams. (2/22 Tr. 111-112, 120-128; Ex. 179). He testified the data from the other mines was used to get a base number so that Shepherd Bend could elevate the numbers in the application to ensure that the environment is protected. (2/22 Tr. 131-132). Mr. Muncher agreed with Riverkeeper counsel that an average number should not be used to predict a maximum number. (2/22 Tr. 134). He testified about a chart depicting his calculations going by formulas of the expected average flow, expected TSS, expected iron, and expected manganese for the different basins in the permit application, as compared to what was put in the NPDES permit application. (2/22 Tr. 135-144). Mr. Muncher testified regarding a comparison of flow numbers in the ASMC permit application and the NPDES permit application. (2/22 Tr. 145-156). He testified the sediment ponds are designed to capture sediment from a 10-year, 24-hour rain event. (2/22 Tr. 156). He testified he has not done calculations to determine what impacts sediment flowing out of ponds 5, 6, 7, 8 during a 10-year, 24-hour rain event will have on the receiving stream. (2/22 Tr. 158-161). He testified that he has not done any calculations to determine what impacts peak sediment concentration discharges from ponds 5-8 during a 10-year, 24-hour storm event will have on the receiving stream. (2/22 Tr. 162-165). He testified Shepherd Bend has the capacity to pump from one pond to another. (2/22 Tr. 165-166).

g. Lynn Sisk – Mr. Sisk testified he is Chief of the Water Quality Branch, and he stated his duties in that position. (2/22 Tr. 169-171). He is a registered Professional Engineer, and has worked in ADEM's water quality branch twenty-seven years. (2/22 Tr. 172, 2/23 Tr. 250). He testified the Water Quality branch was asked to respond to comments on the draft permit, and in doing so mostly reviewed Pages 7A and 7B of the permit application to determine where Shepherd Bend's outfalls were in relation to the BWWB intake and the expected flow from each outfall, respectively. (2/22 Tr. 173-177; Ex. 26). Mr. Sisk testified he accepted Shepherd Bend's numbers at face value because they seemed reasonable to him. (2/22 Tr. 177-178). He testified he noted that all of the outfalls were precipitation driven outfalls. (2/22 Tr. 180). He explained mass balance calculations, and that the purpose is to determine the impact of Shepherd Bend's discharges on the receiving streams. (2/22 Tr. 182-184). He testified he

performed mass balance calculations for iron, manganese and total suspended solids based on the information in the permit application, information from the BWWB, and departmental data. (2/22 Tr. 181, 187-195; Ex. 113; Ex. 115). Mr. Sisk agreed that average flow numbers unconnected with any particular rain event are not predictive of what maximum flow numbers from a mine will be in a rain event of particular size. (2/22 Tr. 187). Mr. Sisk testified he assumed the BWWB intake was taking in 100 percent of the river, which was an overestimation, and that the pollutants were fully mixed at the point of the BWWB intake. (2/22 Tr. 189). He ran the mass balance calculations under different flow scenarios using the daily average and the daily maximum limitations in the Permit. (2/22 Tr. 194, 199). He testified the manganese numbers were in error, but that the resulting concentrations would actually be less. (2/22 Tr. 201-203). Mr. Sisk testified that nothing BWWB said about the Permit changed his opinion about the Permit. (2/22 Tr. 203-204).

h. Warner Golden – Mr. Golden testified he is a civil engineer and a certified Professional Engineer, and he has worked as a consultant for twenty-five years. (2/23 Tr. 5). He testified he reviewed the NPDES permit application, the NPDES Permit, the ASMC permit application, the ASMC permit, other documents from Shepherd Bend, ADEM's mass balance equations, BWWB documents, data, and State water quality standards to determine whether the Permit could potentially harm water quality standards. (2/23 Tr. 8-9). He testified the ASMC permitted area is roughly 286 acres. (2/23 Tr. 12). He prepared a map showing the permitted areas and locations of the twenty-nine outfalls. (2/23 Tr. 12; Ex. 192). He testified regarding a Corps of Engineers map Shepherd Bend used to complete their permit application. (2/23 Tr. 18-Ex. 3). Mr. Golden testified regarding his review of Mr. Sisk's mass balance calculations. (2/23 Tr. 21-38). He testified he does not find Mr. Sisk's mass balance calculations useful, and believes Mr. Sisk's numbers do not reflect the mix intake concentration because the flows are not applicable in a storm event. (2/23 Tr. 30-39; Ex. 113; Ex. 115). Mr. Golden testified he did his own mass balance calculations for outfalls 5-8 (those covered by the ASMC permit) using numbers from the SEDCAD analysis, and he explained his results (2/23 Tr. 39-69; Ex. 195). He did mass balance equations for TSS, iron, manganese, aluminum, arsenic, mercury, lead, antimony, nickel, and zinc. (2/23 Tr. 42-43). Mr. Golden testified that, instead of using three flow scenarios like Mr. Sisk did, he used one flow scenario, 17, to represent low-flow conditions. (2/23 Tr. 43-44). Mr. Golden testified regarding his conclusions on the TSS, iron, manganese, aluminum, arsenic, mercury, lead, antimony, nickel, and zinc concentrations in the river from ponds 5-8 after a 10-year, 24-hour storm event. (2/23 Tr. 52-69). He testified, over objections, that he determined the TSS, iron, manganese, aluminum, arsenic, mercury, and lead concentrations will violate water quality standards, but that the antimony, nickel and zinc discharges would not violate water quality standards. (2/23 Tr. 52-69). Mr. Golden testified regarding a hydrograph he created between the mine area and the Mulberry Fork based on a six-inch rain that he later admitted was not a scientific measure of an actual effect. (2/23 Tr. 73-75, 84, 105; Ex. 194). He testified that during a 10-year, 24-hour rain event, 19.5 million pounds of sediment will runoff from the twenty-nine basins at the Shepherd Bend mine into the river, and that most of that

sediment will settle out in Bankhead Dam and Lake, but he later admitted that he had not done any measurements related to the conditions at the Dam. (2/23 Tr. 76, 79-80, 107). On cross-examination, Mr. Golden testified that ponds should operate at the design flow, and if they discharge more than the design flow, they have failed. (2/23 Tr. 83-84). He testified that, in his mass balance calculations, he assumed the concentrations of pollutants in the coal were the same as those concentrations in the runoff. (2/23 Tr. 86). He testified that if Mr. Sisk had used the correct manganese numbers, the concentrations would have been lower. (2/23 Tr. 102). He testified SEDCAD is a tool for pond design, and not for predicting water quality impacts. (2/23 Tr. 102-103). He testified he has not designed sediment pond or done any other engineer work for a coal mine, has had no training in SEDCAD, has not done any work with the ASMC or reviewed ASMC regulations, and has never been to the Shepherd Bend site or done any sampling or testing at the site. (2/23 Tr. 107-109).

i. Dr. Mark Barnett – Dr. Barnett testified he is a professor of environmental engineering at Auburn University. (2/23 Tr. 113). He is also a certified Professional Engineer since 2006. (2/23 Tr. 114). He testified regarding the specifics of his work. (2/23 Tr. 114-117). Dr. Barnett testified, based on his review of a number of documents, he does not believe the documents submitted by Shepherd Bend were sufficient to justify the issuance of the Permit because some of the data was not peer reviewable. (2/23 Tr. 120-122). He testified regarding the error in Mr. Sisk's calculations with the manganese concentrations. (2/23 Tr. 123-124). He testified he does not think it is appropriate to use average values to predict the effects of flow. (2/23 Tr. 124). He testified regarding his opinion on the effects of peak sediment discharge as predicted by Mr. Golden, and he believes the water quality standards will be exceeded in that situation. (2/23 Tr. 125-128). Dr. Barnett testified to explain settleable solids and total suspended solids, and he testified that he believes the alternative limits for settleable solids are insufficient to protect the receiving waters from the impacts of sediment. (2/23 Tr. 129-130). Over objection, he testified regarding a BWWB letter containing a listing of trace elements of metals found in samples near the BWWB intake. (2/23 Tr. 134-136; Ex. 156). He testified that, aside from an EPA report saying those metals weren't expected to be a problem at mining sites, he did not see a reason to exclude those metals from the Permit. (2/23 Tr. 137-139). Dr. Barnett explained a maximum contaminant level, or MCL, and secondary MCLs. (2/23 Tr. 139-141). He testified the Permit's limits for iron and manganese are above the secondary MCL, and will present a problem with the aesthetic value of drinking water. (2/23 Tr. 141-142). He testified he does not think it is appropriate to assume that discharges off a mine will be diluted to the point where any harmful pollutants will be neutralized. (2/23 Tr. 142). He testified the discharges would have a greater effect on the tributaries than the Mulberry Fork itself, but that localized rainfall would also have a greater dilution effect. (2/23 Tr. 145-148). He testified he does not believe the Permit's limits will be protective of water quality, and that discharges authorized under the Permit will violate water quality standards. (2/23 Tr. 146). On cross-examination, Dr. Barnett testified he has never been to Shepherd Bend, has never seen a functioning sediment pond at a surface coal mine, has never been engaged as an

engineer for a mining operation, never designed a sediment pond for a surface coal mine, never prepared an NPDES application for a surface mine, never developed any data showing a correlation between metals in coal and effluent from the coal mines in the Black Warrior River, and never studied or quantified the number or amount of any severely localized thunderstorms or their frequency over the Shepherd Bend site. (2/23 Tr. 150, 156, 158). He testified he is not aware of any regulatory requirement that a peer-reviewable report is necessary to support a permit application. (2/23 Tr. 151-153). He admitted that he did not gather the information or write the report he relied upon for his testimony concerning trace elements of metals, and he is not aware of any regulation that requires specific limits for those metals. (2/23 Tr. 153-154, 156; Ex. 156).

j. Patrick Flannelly – ADEM and Shepherd Bend objected to Mr. Flannelly as a witness. (2/23 Tr. 159-162). Mr. Flannelly testified he is a licensed civil engineer who has worked for Malcolm Pirnie for seventeen years, and is currently vice president. (2/23 Tr. 163). He is presently the independent engineer for the BWWB, but not an employee of BWWB. (2/23 Tr. 164). He testified BWWB has an intake on the Mulberry Fork which draws in water out of the river. (2/23 Tr. 165). He testified he directed civil engineers to review the draft permit to establish whether the permit would protect the BWWB intake. (2/23 Tr. 170). He testified they looked at USGS data to determine what kinds of contaminants existed in the coal. (2/23 Tr. 173). He testified he prepared four letters summarizing their analysis of the draft permit as issued, all signed by the BWWB. (2/23 Tr. 174-180; Exs. 49, 81, 129 156). He testified they determined that certain metals had been detected in the coal. (2/23 Tr. 181-184). He testified they tested five small coal samples from the watershed – not the mine - and determined one sample was acid-forming and all five samples demonstrated the ability to leech contaminates when exposed to acidic conditions; however, the analyses are not conclusive. (2/23 Tr. 183-186). He testified, over objection, that he does not think the permit is protective of the water quality standards for drinking water supply. (2/23 Tr. 190). On cross-examination, Mr. Flannelly testified they tested the coal, not the soils, and he does not know whether those metals are in the soils. (2/23 Tr. 191-192). Mr. Flannelly testified he thinks the BWWB did not appear in this proceeding because they were not subpoenaed, and they know that he was subpoenaed. (2/23 Tr. 194-195).

k. Dr. Rob Angus – Dr. Angus testified he has a bachelor's decree in biology and a PhD. in zoology, he is a biology professor at UAB and is a member of Black Warrior Riverkeeper. (2/23 Tr. 197, 211). He testified one of his special areas is stream health and stream ecology. (2/23 Tr. 198). He reviewed a number of documents in developing his opinions, including several studies. (2/23 Tr. 199-200; Exs. 7, 8, 11, 16, 19, 25, 213). He testified regarding the difference between total suspended solids and settleable solids. (2/23 Tr. 202). He testified that, with excessive levels of TSS – beginning at 100 milligrams per liter – fish can't see and aren't effective at finding food, hiding, or reproducing. (2/23 Tr. 203-205). He testified that the TSS number calculated by Mr. Golden for ponds 5-8 during a 10-year, 24-hour event would have a harmful impact on the ecological health of the stream, and that any level of TSS above 100 milligrams per liter will violate

narrative water quality standards. (2/23 Tr. 207). On cross-examination, Dr. Angus testified he has not done any peer reviewed publications or research on the environmental impacts of surface coal mining, has not done any water quality sampling for any of Shepherd Bend's receiving waters, has not done a bioassessment on any receiving waters, has no training with regard to toxicology of heavy metals, has no personal knowledge of the geology of the Shepherd Bend mine, hasn't calculated the quantity of metals that would be discharged under the Permit, and has not made any independent calculation of sediment discharges. (2/23 Tr. 212-214). He testified that the segment of the Mulberry Fork at the Shepherd Bend site is not listed as impaired. (2/23 Tr. 215, 216). He read from Exhibits 213 and 19, which state that the effects of suspended sediments on fishes are not well-understood. (2/23 Tr. 215).

2) ADEM's Witnesses

a. Eric Sanderson – Mr. Sanderson testified he chief of the Industrial Permitting Section of ADEM's Water Division, and he is a professional engineer. (2/23 Tr. 218-219). He testified his group received the Permit from the Field Operations Division after it had gone through public notice. (2/23 Tr. 219). He testified his group prepared the response to comments by reviewing all comments received and making sure the Permit met all State and federal regulations. (2/23 Tr. 220). He testified he asked the Water Quality group to ensure the drinking water intake was protected in relation to the pollutants named in the comments, and that there was not a reasonable potential to exceed water quality. (2/23 Tr. 221). He testified the water quality branch and the Field Operations Division reviewed the response to comments and were satisfied with it. (2/23 Tr. 221). Mr. Sanderson read part of the Response to Comments stating an EPA document indicates that toxic metal concentrations for mining discharges are expected to be at or below the detection limit, and he testified that means the pollutant of concern cannot be measured or is not measured. (2/23 Tr. 222-223; Ex. 116). Mr. Sanderson read another part of the Response to Comments that stated that it is expected that achieving the total iron and manganese allocations will also address aluminum, and he testified that controlling iron and manganese will also inherently control aluminum. (2/23 Tr. 224; Ex. 116). He testified that the Response to Comments concludes that the Permit, as drafted, meets all State and federal requirements, and it addresses all concerns raised in the comments submitted. (2/23 Tr. 224, 226). He testified his section reviews information received after the public notice period has ended. (2/23 Tr. 224-225). He testified they received information on Shepherd Bend's permit after the public notice period, they evaluated it, and he did not see any need to reopen the Permit. (2/23 Tr. 225). He testified he can make changes to the Permit if he receives information that shows a need to do so. (2/23 Tr. 226). He testified EPA received the draft permit and did not comment on it. (2/23 Tr. 226-227). He testified that precipitation event discharge limitations do not apply unless a permittee submits a claim of exemption to ADEM and ADEM grants the exemption. (2/23 Tr. 228). He testified ADEM would look at claims of exemptions on a case-by-case basis, and ADEM has the discretion to deny a claim of exemption. (2/23 Tr. 246-248). He testified precipitation event discharge limitations are included in permits because they are

a part of EPA's effluent guidelines, and permittees do not take advantage of the exemptions because the process is time-consuming and expensive. (2/23 Tr. 228-229). He testified that if Shepherd Bend did submit a claim of exemption, he would ask Water Quality to review it to ensure that water quality would be protected, and if not, ADEM would not give the exemption. (2/23 Tr. 229-230). He testified the limitations in the Permit are consistent with EPA's National Effluent Guidelines for Surface Coal Mines, and there was no need to set any limits more restrictive than those limits to protect water quality. (2/23 Tr. 230). He testified, over objection, he had not heard anything during the hearing that raises any doubts about whether the Permit limits are protective of water quality. (2/23 Tr. 231). On cross-examination, he testified it would not surprise him that effluent guideline limits are applied to every mining permit ADEM issues. (2/23 Tr. 232). He testified regarding the precipitation event discharge limitation section of the permit, and that the exemptions vary depending on the type of discharge. (2/23 Tr. 234-242). He testified he did not find Mr. Golden's testimony persuasive, and he believes the Permit is protective of water quality. (2/23 Tr. 243). On re-direct, he testified the permit for another mine, the Rosa Mine, includes limits in addition to the national effluent guidelines. (2/23 Tr. 245).

b. Lynn Sisk – Mr. Sisk testified that the Water Quality Branch gathers and synthesizes water quality data from around the state, so he is quite knowledgeable about water quality in Alabama's streams and rivers. (2/23 Tr. 250-251). He testified in reviewing the Permit, he assumed the water quality data provided by BWWB and the information provided in Shepherd Bend's application were accurate, as nothing appeared inconsistent. (2/23 Tr. 251-252). He testified that iron and manganese are bound up in the dirt for mines, and if something is not in the dirt, he would not expect to find it in the discharge in a measureable amount. (2/23 Tr. 252). He testified he does not run calculations for hypothetical pollutants, but he runs calculations for pollutants for which there are limits in the Permit. (2/23 Tr. 253). Mr. Sisk testified the data submitted by Shepherd Bend in its application was consistent with data he's seen for other mines in that area. (2/23 Tr. 254). He testified he performed his analysis for normal operating conditions, meaning his calculations assume Shepherd Bend has pollution control structures in place, Shepherd Bend is discharging the maximum permitted level from all outfalls at the same time, and Shepherd Bend is meeting permit limits on the discharges. (2/23 Tr. 254-255, 262). He testified he assumed the BWWB pumping rate was the flow of the river, i.e., BWWB was taking in all the water from the river, i.e., a low-flow condition, i.e., a conservative assumption. (2/23 Tr. 255-256, 261, 265). He testified he used BWWB data from the intake to derive the background concentrations of pollutants, meaning his calculation assumes the pollutant load in the Mulberry Fork is the typical pollutant load in the Mulberry Fork. (2/23 Tr. 256-257). He testified he has not heard anything from Riverkeeper's experts that changes his conclusion that discharges under the permitted limits would not significantly impact water quality at BWWB's drinking water intake. (2/23 Tr. 259; Ex. 115). He testified his error with the manganese calculation was an overprediction of the concentration. (2/23 Tr. 260). Mr. Sisk testified his calculations showed that the concentrations of the

parameters he looked at were generally within the range of values typically seen based on the intake data. (2/23 Tr. 262). He testified he is not aware of any 303(d) listed streams for which the impairment is attributable to active, legal surface mining. (2/23 Tr. 263). On cross-examination, he testified that the instream pH surface water quality criteria for public water supply are 6-9, and the Permit allows a pH of 9.0-10.5 in the discharge. (2/23 Tr. 266-271). In response to questions by the Hearing Officer, he testified the differences between his calculations and Mr. Golden's are that Golden's include a considerably higher discharge flow, Golden's uses only the lowest river flow, Golden's include additional metals, and Golden's assumed the concentration of sediment in the discharge was much higher. (2/23 Tr. 272-274). He testified Mr. Golden's numbers seem very high to him. (2/23 Tr. 276). Mr. Sisk testified, based on what he knows right now, he does not think the Permit authorizes discharges of pollutants that will either cause or contribute to a detectable contravention of State water quality standards. (2/23 Tr. 277-278).

3) Shepherd Bend's Witnesses

a. David Muncher – Mr. Muncher testified he is the president of Shepherd Bend and Eagle One, the managing member of Shepherd Bend, LLC. (2/24 Tr. 4-5). He testified he has a Bachelor's in mineral engineering, an M.B.A., and he is a professional engineer. (2/24 Tr. 5). He testified he has worked in the coal mining industry consistently since 1984, and he has lived in Walker County his entire life. (2/24 Tr. 8-9). He testified he and his family use the Black Warrior River and its tributaries for recreation, and maintaining the water quality of those waters is important to him. (2/24 Tr. 9). He testified regarding how the Shepherd Bend mine site was selected, and he explained ash percentage and BTU. (2/24 Tr. 9-15). He testified they filed a Notice of Intent to Explore with the ASMC in 2006. (2/24 Tr. 16-17). He testified regarding other pre-ASMC application activities they conducted, including gathering baseline data, property ownership information, cultural analysis, (2/24 Tr. 17-19). He testified, in his experience, ASMC requires an NPDES permit to review a permit application. (2/24 Tr. 19-20). Mr. Muncher testified regarding reclamation requirements in the ADEM and ASMC permits. (2/24 Tr. 20-21). He referred to the permit application and testified that, in the process of gathering information for the necessary permits, the business' opinions may change as far as how they will conduct their operation. (2/24 Tr. 21-25, 53; Ex. 26). He testified regarding the expected economic impact of the mine. (2/24 Tr. 26-30). Mr. Muncher testifies he considers mining to be a heavily-regulated industry, and he named the various agencies with oversight. (2/24 Tr. 30-33). He testified regarding Army Corps of Engineers correspondence. (2/24 Tr. 34-41; Exs. 86, 118, 122, 146, 158). He testified a company has to have a permit from ASMC to mine a site, and he reviewed the process for obtaining an ASMC permit. (2/24 Tr. 41-49; Ex. 155, 166). He testified they performed an acid/base count on the soils and the coal seam horizons, and it was determined that the soils were non-acid producing soils. (2/24 Tr. 49-50). He testified that, although the NPDES permit includes 29 outfalls, only four will be constructed and operated due to the limitations in the ASMC permit. (2/24 Tr. 50). He testified that the active mining pit area for

Shepherd Bend will be about 1000 feet by 100-150 feet, which moves as they mine, and the area of the exposed coal seam will be about 100-150 feet by 100-150 feet. (2/24 Tr. 54-55). On cross-examination, he testified the NPDES permit covers 29 ponds and allows for authorization to mine 1773 acres, with the exception that they obtain all other regulatory permits. (2/24 Tr. 58, 61). He testified, at the time of the test-drilling in 2006, Shepherd Bend did not own surface rights to the mine property. (2/24 Tr. 57-59). He testified regarding estimated coal storage. (2/24 Tr. 61-63). He testified the Corps of Engineers permit covers about 300 acres and ponds 5-8. (2/24 Tr. 65). He testified Shepherd Bend could not go forward with mining activities on the site until it acquired a surface interest in the property, which it acquired in April 2010. (2/24 Tr. 67).

b. Steve Ingel – Mr. Ingel testified he works for Twin Pines, LLC, has lived in Walker County all of his life, has a Bachelor's in mineral engineering and is a professional engineer. (2/24 Tr. 68-69). He testified he has used SEDCAD since 1986 to design thousands of basins, and he explained how SEDCAD works. (2/24 Tr. 71-74). He testified SEDCAD conservatively predicts tons yield from the watershed and from the ponds. (2/24 Tr. 73). He testified one can monitor the performance of a pond by referring to the Discharge Monitoring Report ("DMR") for the pond. (2/24 Tr. 75). He referred to Mr. Golden's calculation and testified he is not aware of any pond he's designed that has discharged that much sediment. (2/24 Tr. 76-77). He testified, in his experience, Mr. Golden's calculations do not provide an accurate or reasonable prediction of how ponds 5-8 will perform, and ASMC would not have approved those ponds if they would discharge in that manner. (2/24 Tr. 77). He testified a more accurate predictor of how the ponds will discharge is historical DMR data from a mine of a similar type in a similar area, like the Red Star Mine across the Mulberry Fork from Shepherd Bend, which has been in operation for six or seven years. (2/24 Tr. 78, 92-93). He testified the Red Star mine DMR data shows no numbers approaching those of Mr. Golden's. (2/24 Tr. 79; Ex. 206). Mr. Ingel testified he does not consider SEDCAD an appropriate tool to use for predicting water quality impacts. (2/24 Tr. 80). He testified sediment ponds discharge less than ten percent of the time, and in twenty-five years, he has seen less than five clients take advantage of the rainfall exemptions because of the difficult process. (2/24 Tr. 80-83). Mr. Ingel pointed out the Red Star mine as being directly northeast of the Shepherd Bend mine across the Mulberry Fork, immediately upstream of the BWWB intake. (2/24 Tr. 83-84; Ex. 192). On cross-examination, he testified he did not design ponds 5-8 for Shepherd Bend, but that the engineer who did certified the designs to perform in accordance with prudent engineering practices. (2/24 Tr. 86, 88). He read from the ADEM Coal Permit Precipitation Event Alternative Discharge Limitation Report. (2/24 Tr. 90-91; Ex. 116).

c. Dr. Thomas Simpson – Dr. Simpson testified he is a biologist, vice president, and global practice leader for natural resources management with CH2MHILL, and he has bachelor's, master's, and doctorate degrees in biology and zoology (2/24 Tr. 94-95). At CH2MHILL, he specializes in aquatic ecology and wetlands ecology, and he has professional experience with surface mines. (2/24 Tr. 95-96). He

testified he has been to the Shepherd Bend mine while there was snow on the ground, and there had been several inches of snow in the preceding days. (2/24 Tr. 97, 119). He testified he has reviewed several documents, including the studies Dr. Angus referenced in his testimony. (2/24 Tr. 98). Dr. Simpson testified, based on his review of those documents and studies and his visit to the site, he believes Shepherd Bend's operation, as proposed, will be protective of a balanced aquatic community. (2/24 Tr. 99-101). He testified one of the studies relied upon by Dr. Angus was inconclusive (Tr. 101-103; Exs. 7, 8, 11, 16, 19, 25). He testified that the Davenport Study he relied upon provided a good evaluation of the mine impacts and correlated more with what he saw during his site visits. (2/24 Tr. 104-112; Ex. 160, 215, 216, 217). He testified regarding a study from the Geological Survey of Alabama containing sampling data from 68 points in the Mulberry Fork watershed, one of which is downstream from and surrounded by coal mines. (2/24 Tr. 113-115; Ex. 10). Dr. Simpson testified that the Geological Survey of AL study provides additional support of the lack of impact from the coal mining area around Shepherd Bend upon the fisheries in that area. (2/24 Tr. 116). He testified that study indicated the biological index in that area was fair to good and a dominance of a species of minnow that have to reproduce in crevices. (2/24 Tr. 116-117). On cross-examination, Dr. Simpson testified he did not take any samples or collect any data during his visit to the Shepherd Bend site, and he bases his testimony of the site visit on his first-hand observations. (2/24 Tr. 118-119). He testified 100 milligrams per liter as a concentration in the river would be protective of water quality. (2/24 Tr. 100, 120). He testified regarding a Robertson, Bryan study with limestone quarries that indicates a concentration of 21-250 milligrams per liter reduces net spinner species. (2/24 Tr. 123). He testified the Davenport Study related to conductivity in benthic invertebrates and not fish, non-benthic invertebrates, or microinvertebrates, and the sampling locations were downstream of active mines, but no actual distance was shown. (2/24 Tr. 125-128). He testified regarding the concept of cumulative impacts, and explained that they are based upon time and duration and spatial factors. (2/24 Tr. 129-130). He testified that none of the studies were done in the Mulberry Fork area. (2/24 Tr. 135).

d. J. P. Martin – Prior to his testimony, Riverkeeper reiterated its Motion to exclude any testimony from Mr. Martin's going beyond that identified by Shepherd Bend, and that Motion was denied by the Hearing Officer. Mr. Martin testified he is a professional engineer with a bachelor's in civil engineering and M.B.A who has been involved in the environmental field since 1978. (2/24 Tr. 146-147). He worked at ADEM as an environmental engineer, head of the industrial NPDES permitting group, and a senior engineer. (2/24 Tr. 149). He testified he is presently a vice president at CH2MHILL, and he explained his responsibilities there. (2/24 148-150). He testified he reviewed a number of documents, including the Permit rationale and Mr. Sisk's memo, and he has been to the Shepherd Bend site and surrounding area (2/24 Tr. 152). He testified ADEM's water quality standards in the Mulberry Fork are those for public water supply, and explained those requirements, which are not MCLs. (2/24 Tr. 153-155). He testified as to how an NPDES permit is formed, and that the coal mining industry is unique because of the dual regulatory requirements of ADEM and the ASMC.

(2/24 Tr. 155-8). He testified the ASMC requires a facility to be designed to contain a 10-year, 24-hour event, which, for the Shepherd Bend area would be a 6-inch rain and would occur once in ten years over a 24-hour period. (2/24 Tr. 159). He testified, over objection, that ADEM evaluates discharges under a Permit to determine whether there is a reasonable potential to violate water quality standards, and if so, ADEM includes a limit for that pollutant in a permit. He testified the rules do not specify how this is to be accomplished, but as a quantitative approach, ADEM will perform mass balance calculations. (2/24 Tr. 161-2). Mr. Martin testified that, when there is no numeric standard, ADEM uses its professional judgment and knowledge of the discharge and the receiving water to determine how that particular constituent would play out in the receiving waterbody. (2/24 Tr. 163-4). He testified, over objection, that his opinion is that the Permit will comply with water quality standards. (2/24 Tr. 165-6). He testified regarding why he believes there is not a reasonable potential that there will be a violation, going through calculations using several pollutants. (2/24 Tr. 166-80; Ex. 220, 221,) He testified TDS, aluminum, sulfate and chloride are virtually always associated with acid mine drainage, and there is very little to zero likelihood Shepherd Bend's mine will be an acid mine. (2/24 Tr. 175-6). He testified there is an opportunity for mixing between the pH in the discharge and in the river, which would neutralize the mix, and Shepherd Bend's pH limitations are common in recognition of the fact that mixing occurs. (2/24 Tr. 178-9). He testified the ASMC inspects all operating coal mines on a monthly basis to monitor TSS related issues and discharges. (2/24 Tr. 183-4). Mr. Martin testified he believes Mr. Sisk's analysis is sound and conservative because it assumed Shepherd Bend's discharges would entirely flow into the intake and because it is very likely the TSS, iron and manganese levels will be within the permitted limits 99 percent of the time. (2/24 Tr. 184-5). He testified it was reasonable for Mr. Sisk to assume the TSS concentrations were at the Permit limits of 35 and 70 milligrams per liter, because those numbers comply with the regulations between 90-100 percent of the time, and those TSS concentrations are achieved a preponderance of the time from ponds at coal mines. (2/24 Tr. 185-8; Ex. 119). He testified his conclusion from Mr. Sisk's analysis is that the BWWB intake will be protected. (2/24 Tr. 189). He testified regarding errors and inaccuracies in Mr. Golden's and Dr. Barnett's analyses – both using data from the SEDCAD analysis, which is not a water quality tool and has an output of sediment instead of TSS; Mr. Golden using unrealistic/unproportionate numbers in his mass balance calculations; Mr. Golden assuming there is twice as much flow coming off the site than in the entire river in his hydrograph, which is impossible; (2/24 Tr. 189-99, 220-1; Exs. 220, 195; 194). He testified the dual regulatory system, ASMC monitoring, and the permit reopener clauses provide additional assurances that water quality will be met. (2/24 Tr. 199). On cross-examination, he testified he stated in his deposition on February 7, 2011 that ADEM does not need to have site specific information about a particular mine to conclude that the limits in the Permit are protective of water quality. (2/24 Tr. 206-7). He testified he has been hired as an engineer for an NPDES permit for a surface mine on one occasion, has never worked on an ASMC permit, is not a biologist, zoologist, limnologist, or ecologist. (2/24 Tr. 207-8). He testified Shepherd Bend provided SEDCAD analysis to ADEM for ponds 8 and 10, but ADEM did not use that information for

water quality purposes. (2/24 Tr. 211). He testified he used BWWB background data for heavy metals, but he did not accept BWWB's opinion as to the expected heavy metals in Shepherd Bend's discharges. (2/24 Tr. 212-3). He testified he did not do his own analysis to determine how much sediment will be discharged. (2/24 Tr. 215). He agreed that an excess concentration of TSS or settleable solids can adversely impact the suitability of water for fish and wildlife or for public drinking water. (2/24 Tr. 218-9). He testified again regarding the mixing zone allowed by the regulations. (2/24 Tr. 224-6). He testified he believes Mr. Sisk's use of 17 for low-flow conditions in the river is a very conservative analysis, and as a very conservative analysis, it is a good assumption. (2/24 Tr. 228). He agrees with Mr. Sisk's assumption that every discharge from Shepherd Bend's mine will comply with 35 milligrams per liter daily average and 70 milligrams per liter daily maximum for TSS. (2/24 Tr. 229-30). He explained a reasonable potential analysis. (2/24 Tr. 230-2). He testified Mr. Sisk did reasonable potential analyses for TSS, iron and manganese. (2/24 Tr. 232). He testified pH is not mixed but is neutralized, and it is a measure of the relative acidity or alkalinity of a thing. (2/24 Tr. 236). On re-direct, Mr. Martin testified he has worked on several hundred to thousands of NPDES permits in his career. (2/24 Tr. 237). He testified he had not heard anything from Riverkeeper witnesses that gave him the idea they had any actual data about what pH would be in the river. (2/24 Tr. 238).

Documentary Evidence

Exhibit 3: 1981 USGS Open-File Report Map, "A Method of Estimating Average Streamflow and Headwater Limits in U.S. Army Corps of Engineers, Mobile District, Alabama and Adjacent States."

Exhibit 7: March 30, 1999, *A Scientific Basis for Erosion and sedimentation Standards in the Blue Ridge Physiographic Province*, Proceedings of the 1999 Georgia Water Resources Conference, Meyer, J., Sutherland, A., Barnes, K., Walters, D. and Freeman, B.

Exhibit 8: April 5, 2001, *Effects of Suspended Sediment on the Reproductive Success of the Tricolor Shiner, a Crevice-Spawning Minnow*, American Fisheries Society 130:959-968, Burkhead, Noel M. and Jelks, Howard L.

Exhibit 10: T. Shepard, P. O'Neil, S. McGregor, W. Henderson, Jr., "Biomonitoring in the Mulberry Fork Watershed, 1999-2002," Geological Survey of Alabama (2002).

Exhibit 11: 2003, *Urbanization, sedimentation, and the homogenization of fish assemblages in the Etowah River Basin, USA*, Hydrobiologia 494:5-10, Walters, D.M., Leigh, D.S. and Bearden, A.B.

Exhibit 16: March 29, 2006, *Effects of increased suspended sediment on growth rate and gill condition of two southern Appalachian minnow*, Environ. Biological Fish 80:389-403, Sutherland, A.B. and Meyer, J.L.

Exhibit 17: Robertson-Bryan, Inc., March 2006 Technical Memorandum "Suspended Solids and Turbidity Requirements of Freshwater Aquatic Life and Example Relationship Between TSS (MG/L) and Turbidity (NTUs) for a Treated Municipal Effluent."

Exhibit 19: October 27, 2006, *Effects of Increased Suspended Sediment on the Reproductive Success of an Upland Crevice-Spawning Minnow*, American Fisheries Society 136:416-422, Sutherland, A.B.

Exhibit 25: August 21, 2007, *Effects of Suspended Sediment on Whole-Body Cortisol Stress Response of Two Southern Appalachian Minnows, Erimonax monachus and Cyprinella galactura*, Copeia 1:234-244, Sutherland, A.B., Maki, J. and Vaughan, V.

Exhibit 26: October 10, 2007 letter from David Muncher (Shepherd Bend) to Darby Clark (ADEM) with enclosed Shepherd Bend Initial NPDES Permit Application.

Exhibit 46: December 13, 2007 Riverkeeper public comment letter.

Exhibit 49: December 14, 2007 BWWB public comment letter.

Exhibit 81: March 6, 2008 letter from Mac Underwood (BWWB) to David Muncher (Shepherd Bend), requesting additional information.

Exhibit 86: March 13, 2008 letter from David Muncher (Shepherd Bend) to Cindy J. House-Pearson (USACE) transmitting the Jurisdictional Determination forms and supporting information for the proposed Shepherd Bend Mine.

Exhibit 112: May 22, 2008 unsigned copy of letter from David Muncher to Cindy House-Pearson enclosing the pre-construction notification for the Shepherd Bend Mine.

Exhibit 113: June 13, 2008 2:47 p.m. e-mail from Chris Johnson (ADEM) to Glenda Dean (ADEM) with attached June 13, 2008 final review and response memo from Lynn Sisk to Glenda Dean with response to comments regarding Shepherd Bend draft NPDES permit.

Exhibit 115: July 18, 2008 memorandum to Glenda Dean (ADEM) from Lynn Sisk (ADEM).

Exhibit 116: July 21, 2008 letter from Eric Sanderson (ADEM) to Donald Baxter (Shepherd Bend) transmitting NPDES permit with attached NPDES Permit Number AL0079162 issued to Shepherd Bend, in its entirety, including ADEM responses to public comment and supporting materials.

Exhibit 118: July 25, 2008 letter from David Muncher (Shepherd Bend) to Howard Ladner (USACE) responding to questions regarding the Shepherd Bend, LLC ACOE permit application.

Exhibit 119: August 2008, Coal Mining Detailed Study, EPA-821-R-08-012, http://www.epa.gov/guide/304m/2008/cm-detailed-200809.pdf.

Exhibit 122: September 10, 2008 letter from Cindy House-Pearson (USACE) to Shepherd Bend, LLC responding to request to amend Nationwide Permit Number SAM-2008-457-HWL.

Exhibit 129: January 30, 2009 letter from Darryl Jones, Birmingham Water Works Board to Eric Sanderson, ADEM, with all attachments, appendices and studies cited therein.

Exhibit 146: December 18, 2009 letter from Munther Sahawneh, U.S. Army Corps of Engineers to Shepherd Bend, LLC.

Exhibit 149: March 30, 2010 NPDES Compliance Inspection Report for Shepherd Bend Mine, including transmittal letter and all photographs.

Exhibit 152: May 2010 Alabama Surface Mining Commission Permit Application and attachments.

Exhibit 155: July 2010 Revised Alabama Surface Mining Commission Permit Application and attachments.

Exhibit 156: July 6, 2010 letter from Darryl Jones, Birmingham Water Works Board, to Randall Johnson, Alabama Surface Mining Commission, with all attachment, appendices and studies.

Exhibit 158: July 9, 2010 letter from Cindy J. House-Pearson, Chief Birmingham Field Office, USACE to Shepherd Bend, LLC regarding the suspension of Shepherd Bend, LLC's Nationwide Permit (NWP) 21.

Exhibit 159: July 30, 2010 Affidavit of David Muncher with exhibits.

Exhibit 160: L.J. Davenport, Ph.D., and Kevin J. Morse, Ph.D., "An Assessment of Conductivity and Benthic Macroinvertebrate Health and Diversity in Alabama Streams in Ecoregion 68" (August 2010).

Exhibit 166: October 19, 2010 Alabama Surface Mining Commission Permit No. P-3945, with all attachments.

Exhibit 172: Shepherd Bend Drainage Area Flow Calculations (cfs and GPD)(disclosed by Shepherd Bend on January 5, 2011).

Exhibit 173: Shepherd Bend Drainage Area—General Flow Calculations Based on Yearly Rainfall Averages (disclosed by Shepherd Bend on January 5, 2011).

Exhibit 174: Shepherd Bend Drainage Flow Area—Flow Calculation Comparisons (disclosed by Shepherd Bend on January 5, 2011).

Exhibit 175: Long-term Median Streamflows for the Black Warrior River and Major Tributaries Thereof, as Monitored by USGS (disclosed by Shepherd Bend on January 5, 2011).

Exhibit 176: Comparison of ADEM Permitted Acres Versus AASMC Permitted Acres—Shepherd Bend, Horse Creek, Quinton, Redstar (disclosed by Shepherd Bend on January 5, 2011).

Exhibit 177: Page 7c Metal Analysis Backup Information—Certificates of Analysis—ACA Metals (disclosed by Shepherd Bend on January 5, 2011).

Exhibit 178: Mulberry River Flow at Shepherd Bend, Expected Flow Characteristics—Long Term Median Streamflows for Black Warrior River and Major Tributaries (disclosed by Shepherd Bend on January 5, 2011).

Exhibit 179: NPDES Monitoring Samples Results and underlying ADEM data—Redstar Mine, Quinton Mine, and Horse Creek Mine, 2005-Sep 2007 (disclosed by Shepherd Bend on January 5, 2011).

Exhibit 180: Shepherd Bend Rainfall Averages 1997-2007 (disclosed by Shepherd Bend on January 5, 2011).

Exhibit 181: USGS, StreamStats Data-Collection Station Report for Mulberry Fork at Cordova, AL, http://streamstats.usgs.gov/gagepages/HTML/02453500.htm (12/1/2010)(disclosed by Shepherd Bend on January 5, 2011).

Exhibit 187: Curriculum vitae of Warner Golden.

Exhibit 189: Curriculum vitae of Mark Barnett.

Exhibit 192: Map of Shepherd Bend site showing ADEM and ASMC drainage areas.

Exhibit 193: Map of Black Warrior River watershed showing Shepherd Bend mine site.

Exhibit 194: Illustrative Comparison of Storm Hydrographs between Shepherd Bend mine area and Mulberry Fork.

Exhibit 195: Illustrative chart showing mass-balance equations as conducted by Petitioner.

Exhibit 206: Red Star Mine Discharge Monitoring Reports (DMRs).

Exhibit 213: Zamora & Grossman, 2007 Article reviewed by Dr. Angus

Exhibit 214: Curriculum vitae of Thomas Simpson

Exhibit 215: Photo of Fishtrap Branch, Davenport study site

Exhibit 216: Photo of Coal Creek tributary, Davenport study site
Exhibit 217: Photo of Valley Creek tributary, Davenport study site
Exhibit 218: Curriculum vitae of J.P. Martin
Exhibit 219: List of documents J.P. Martin reviewed in preparation for testimony
Exhibit 220: J.P. Martin handwritten chart – reasonable potential analysis for heavy metals
Exhibit 221: J.P. Martin large board – reasonable potential analysis, data points marked
Exhibit 222: Shepherd Bend Pond Design Estimation of Erosion Depths Chart

III. PROPOSED FINDINGS OF FACT

1) Shepherd Bend's NPDES permit application – submitted to ADEM on October 10, 2007 for the Shepherd Bend Mine in Walker County, Alabama – was certified by a registered professional engineer licensed to practice engineering in the State of Alabama.

2) A 30-day public comment period was held on the draft permit.

3) On December 13, 2007, Riverkeeper submitted comments to ADEM on Shepherd Bend's draft NPDES permit for the Shepherd Bend Mine.

4) The Birmingham Water Works Board submitted comments on the draft permit.

5) Upon request of the Industrial Section of the Water Division, ADEM's Water Quality Branch, in coordination with the Drinking Water Branch, reviewed comments submitted by Riverkeeper and BWWB on the Permit and performed an analysis of potential impacts of permitted discharges from the mining activities.

6) ADEM's water quality analysis was completed using information from the permit application, water quality data for the Mulberry Fork collected by the Department, and Mulberry Fork water intake data for the Western Filter Plant submitted to ADEM by the BWWB. The analysis considered a range of river water quality conditions, intake volumes, and mining discharge conditions.

7) Using a conservative approach to estimate the maximum likely impact of permitted discharges on the quality of the water entering the intake structure, ADEM's Water Quality Branch determined the quality of water will not be significantly affected by the proposed permit. ADEM's analysis also determined the range of concentrations for TSS, iron and manganese are comparable to values which occur naturally in response to normal rainfall and runoff events.

8) For constituents that have a numeric water quality standard, if there is a potential to be twenty percent or greater of the standard, ADEM limits those constituents in a permit. If it is a constituent for which you cannot do a numeric analysis, ADEM uses its judgment to determine whether those constituents should be limited.

9) ADEM's analysis of the manganese limitations used an overprediction of the concentrations, and the correct resulting concentrations will actually be lower.

10) ADEM's Response to Comments, which was included with the final Permit, responded to and addressed all concerns raised in the comments submitted on the Permit and concluded that the Permit meets all State and federal requirements.

11) EPA received the draft Permit and did not comment on it. ADEM takes this absence of a response to mean EPA's concurrence with the draft permit.

12) On July 21, 2008 ADEM issued National Pollutant Discharge Elimination System Permit Number AL0079162 to Shepherd Bend, LLC.

13) NPDES Permit Number AL0079162 became effective August 1, 2008.

14) NPDES Permit No. AL0079162 is set to expire on July 31, 2013.

15) NPDES Permit No. AL0079162 authorizes discharges of pollutants from twenty-nine separate outfalls into the Mulberry Fork of the Black Warrior River, unnamed tributaries to the Mulberry Fork, and unnamed tributaries to Barton Creek. These receiving waters are classified for "Public Water Supply" and "Fish and Wildlife" uses.

16) NPDES Permit No. AL0079162 does not authorize any direct discharges to the Black Warrior River.

17) NPDES Permit No. AL0079162 does not authorize any discharges to waters listed on Alabama's CWA § 303(d) list of impaired waters.

18) As a practical matter, the maximum number of outfalls that Shepherd Bend will construct and operate are the four that are covered under Shepherd Bend's ASMC permit.

19) The discharge limitations of the Permit are consistent with EPA's Surface Coal Mining technology based effluent limitations set forth at 40 C.F.R. 434. There was no need to set any limits more restrictive than those categorical limits to protect water quality.

20) NPDES Permit No. AL0079162 contains precipitation event discharge limitations.

21) Precipitation event discharge limitations are part of EPA's national effluent guidelines.

22) The precipitation event discharge limitations in NPDES Permit No. AL0079162 do not automatically apply. For the precipitation event discharge limitations to apply, Shepherd Bend must submit a written claim of exemption to ADEM, and ADEM must grant the exemption.

23) Permittees very rarely take advantage of precipitation event discharge limitations because claiming and obtaining the exemption is time-consuming and expensive; however, if Shepherd Bend did submit a claim of exemption, ADEM would thoroughly evaluate it to ensure protection of water quality before granting the exemption.

24) NPDES Permit No. AL0079162 does not contain limitations on chlorides, sulfates, total dissolved solids ("TDS") or aluminum, all of which are virtually always associated with acid mine drainage.

25) The NPDES Permit requires Shepherd Bend to sample basins for NPDES parameters bi-weekly until Shepherd Bend meets a number of requirements, including but not limited to: receiving a 100% bond release from ASMC, certifying the bond release to ADEM, and requesting termination of monitoring and reporting requirements.

26) ADEM may modify NPDES Permit No. AL0079162 if ADEM receives information showing the Permit is not protective of water quality.

27) Tests of the soils and the horizons surrounding the coal seam at Shepherd Bend determined that the soils at Shepherd Bend are non-acid producing soils.

28) Total Dissolved Solids, Sulfate, Chloride, and Aluminum are not expected to be discharged from any of Shepherd Bend's outfalls permitted under NPDES Permit No. AL0079162 at levels that would violate water quality criteria.

29) Generally, solids discharged from surface coal mines are largely dirt from the mine site, and iron and manganese are bound up in the dirt for mines. If a pollutant is not in the dirt, it isn't expected to be found in the discharge in a measureable amount.

30) On October 19, 2010, ASMC issued Permit No. P-3945-64-15-S to Shepherd Bend, which restricts surface mining to 286 acres and four proposed basins.

31) Under the ASMC permit, Shepherd Bend's final discharge basin is over 4,200 feet from the BWWB intake.

32) The BWWB appealed Shepherd Bend's ASMC permit on November 17, 2010.

IV. PROPOSED CONCLUSIONS OF LAW

A. Nature of This Proceeding and Burden of Proof

This is a de novo process in which the AEMC stands in ADEM's shoes and substitutes its judgment for that of ADEM on questions of law and fact related to the propriety of Shepherd Bend's NPDES Permit. ADEM Admin. Code r. 335-2-1-.14(6); Marshall County Environmental Action Group, et al., AEMC Docket No. 96-21 (because process is de novo and AEMC will substitute its judgment for that of ADEM, there is no right or opportunity to participate in the deliberative pre-decisional process that will not be afforded petitioner to an even larger extent in the de novo hearing). Notwithstanding the de novo nature of this process, ADEM's decision to issue Shepherd Bend's Permit is presumed correct and Petitioners bear the burden to prove

Shepherd Bend's Permit is due to be modified or disapproved by the AEMC. Ala. Code § 22-22A-7(c); ARES Corporation, AEMC Docket No. 01-02; Ipsco Steel, AEMC Docket No. 00-11. Petitioners must prove their contentions by preponderating legal evidence to the Hearing Officer's reasonable satisfaction, the same as in civil cases in this State. ADEM Admin. Code r. 335-2-1-.28(5). Town of Loachapoka, et al., AEMC Docket Nos. 03-01 and -02; River Ridge Homeowners Association, AEMC Docket No. 99-03; Sierra Club, et al., AEMC Docket No. 91-29, *Affirmed*, Montgomery County Circuit Court, CV-92-1190.

With respect to the Hearing Officer's interpretation of ADEM's National Pollutant Discharge Elimination System ("NPDES") regulations, ADEM's interpretations of its NPDES regulations are due deference by the AEMC unless inconsistent with the plain language of those regulations or unless that interpretation is unreasonable. Biodiversity Legal Foundation, AEMC Docket No. 01-01. That another interpretation might appear more reasonable does not render an ADEM interpretation unreasonable. John Wathen, AEMC Docket No. 00-06. Regarding previous conclusions of law by the AEMC, it is essential that administrative rulings be consistent, and a departure from an established interpretation by the AEMC should not be made except for compelling reasons. Fort Morgan Civic Association, et al., AEMC Docket Nos. 97-08 and -10.

B. Standing

Petitioner contends it has standing as an "aggrieved" party for each of the allegations of error set forth in its Request for Hearing. The Alabama Environmental Management Act requires that a Petitioner be aggrieved before it can be heard by the Commission. Ala. Code § 22-22A-7(c) (2006 Rplc. Vol.). "Aggrieved" means Petitioner, or at least one member of Petitioner's organization, suffers a concrete injury in fact by virtue of the contested administrative action of ADEM. ADEM Admin. Code r. 335-2-1-.03. *E.g.*, Jeff Fowler, AEMC

No. 97-16 (petitioner must suffer injury which is (a) concrete and particularized and (b) actual or imminent, not conjectural or hypothetical). Policy interests or concerns shared with the general public are appropriately addressed quasi-legislatively, not quasi-judicially. *E.g.*, Families Concerned About Nerve Gas Incineration, AEMC No. 97-17 (Commission's hearing process not to be used as a vehicle for vindication of value interests of concerned by-standers). A Petitioner bears the burden to prove injury in fact by a preponderance of legal evidence. ADEM Admin. Code r. 335-2-1-.27(5). Failure to do so requires dismissal of its challenge.

Standing is a jurisdictional requirement which must be reviewed at all stages of the case, even *sua sponte*. *See*, Auburn Medical Center v. Alabama State Health Planning and Dev. Agency, 848 So.2d 269, 273 (Ala. Civ. App. 2002) ("Standing represents a jurisdictional requirement which remains open to review at all stages of the litigation.") (J. Crawley, concurring). Accordingly, a Petitioner bears the burden of demonstrating its standing at all stages of the appeal, meaning it must allege adequate facts in its request for hearing to survive a motion to dismiss and it must ultimately prove its standing by a preponderance of the evidence at the hearing. *See*, Lujan v. Defenders of Wildlife, 504 U.S. 555, 561 (1992) ("Since [standing is] an indispensable part of the plaintiff's case, each element must be supported in the same way as any other matter on which the plaintiff bears the burden of proof, i.e., with the manner and degree of evidence required at the successive stages of the litigation.").

C. Whether Shepherd Bend's NPDES Permit Expired or Remains Viable

Riverkeeper suggests that Shepherd Bend's NPDES Permit was automatically voided under ADEM's regulations and the terms of the Permit because Shepherd Bend did not commence construction of the mine within eighteen months after the Permit was issued.[1] If the Permit was automatically voided eighteen months after July 21, 2008, this appeal from that

[1] The Birmingham Water Works Board also makes this assertion in its Amicus Curie Brief, which was filed on April 22, 2011.

NPDES Permit was mooted because there exists no NPDES Permit at issue in this case for the AEMC to "approve, disapprove, or modify" within the meaning of Section 22-22A-7(c) of the Alabama Environmental Management Act. Previous AEMC decisions follow this line of reasoning: Baldwin County Commission, AEMC 90-13 (appeal mooted when permittee declared it no longer intended to use its water pollution control permit); Concerned Citizens of Crenshaw County, 92-35 (surrender of solid waste disposal permit mooted permit appeal); Coal Systems, Inc., AEMC 91-45 (compliance with administrative order moots appeal from that order; Charles Sullivan, AEMC 00-08 (compliance with NOV moots appeal from NOV). Shepherd Bend contends it performed all activities it was legally allowed to perform at the mine site and that, therefore, the NPDES Permit remains in effect. (2/22 Tr. 67-82, 2/24 Tr. 17-20).

ADEM's rule on automatic permit expiration states, "An NPDES permit issued for a 'new discharger' or 'new source' shall expire eighteen months after issuance if 'construction' has not begun during that eighteen month period." ADEM Admin. Code r. 335-6-6-.05(2) (Emphasis added). As Shepherd Bend is a "new source" coal mine, if Shepherd Bend failed to commence construction within eighteen months of July 21, 2008, the Permit was automatically voided. If the Permit is void, then based upon previous Commission decisions, this appeal from the Permit is moot.

Under ADEM Admin. Code r. 335-6-6-.02(g), "construction" means that the owner or operator has:

> 1. begun, or caused to begin as part of a continuous on-site construction program:
>
> (i) any placement, assembly, or installation of facilities or equipment; or
>
> (ii) significant site preparation work including clearing, excavation, or removal of existing buildings, structures, or facilities which is necessary for the placement, assembly, or installation of new source facilities or equipment; or
>
> 2. entered into a binding contractual obligation for the purpose of placement, assembly, or installation of facilities or equipment

> which are intended to be used in its operation within a reasonable time. Options to purchase or contracts which can be terminated or modified without substantial loss, and contracts for feasibility, engineering, and design studies do not constitute a contractual obligation under the paragraph.

During an inspection of Shepherd Bend's proposed mine site on March 18, 2010, an ADEM inspector found a gate had been erected and a sign placed near the gate, but the inspection report notes no additional construction. (Ex. 149). Mr. Muncher testified that the gate was already over the entrance road, but that Shepherd Bend had placed identification signs and locks there after the NPDES Permit was issued. (2/22 Tr. 68). If all Shepherd Bend did within eighteen months after Permit issuance was put signs and locks on an existing gate, Shepherd Bend did not commence construction as defined in ADEM Admin. Code r. 335-6-6-.02(g), the Permit was voided after eighteen months for lack of commencement, and this matter is moot.

D. Whether the Permit Complies with ADEM's NPDES regulations

Primarily at issue in the case are the discharge limitations of Shepherd Bend's NPDES Permit. The Permit imposes EPA's uniform national effluent limitation guidelines for surface coal mines. (Ex. 116; 2/23 Tr. 230; 40 CFR Part 434). ADEM's NPDES regulations require Shepherd Bend's Permit to meet: (1) EPA's National Effluent Limitation Guidelines for surface coal mines at 40 CFR Part 434, (2) any limitation necessary to protect water quality, or (3) any applicable TMDL, whichever of the three is most stringent. ADEM Admin Code r. 335-6-6-.14. There is no TMDL for any receiving water at issue, and ADEM saw no need to set any limits more restrictive than the National Effluent Limitation Guidelines to protect water quality.

In addition to *numeric* criteria, ADEM's water quality regulations include *narrative* criteria, commonly known as the "'free froms." In general, these narrative criteria dictate that State waters will be "free from" various pollutants in amounts that will "cause or contribute to"

an impairment of classified use of a given water body. *See*, ADEM Admin. Code r. 335-6-10-.06. The classified uses of the waters in question are Fish and Wildlife and Public Water Supply. (2/23 Tr. 57, 270-271). To allege discharges pursuant to this Permit will violate narrative water quality standards is to say that in some respect Shepherd Bend's discharges will "cause or contribute to" an impairment of those use classifications.

When seeking to prove a violation of water quality standards, whether numeric or narrative, the alleged impairment must be detectable, not theoretical or hypothetical, to warrant disapproval of the permit at issue. Arkansas v. Oklahoma, 503 U.S. 91 (1992) (allegedly harmful effects of permitted discharge upon impaired stream must be detectable to warrant vacating NPDES permit). This is a glorified way of saying an NPDES permit cannot be disapproved based upon speculation the discharges will cause or contribute to a violation of State water quality standards. Speculation is based upon conjecture, and conjecture is an explanation consistent with known facts but not logically deducible from those facts. Alabama Power Company v. Robinson, 447 So.2d 148, 153-154 (Ala. 1983). Thus Petitioner must prove, more likely than not, that discharges of pollutants by Shepherd Bend, as limited by its NPDES Permit, will *perceptibly* cause or contribute to an impairment of the use classifications.

With this understanding, the following addresses each of Petitioner's contentions on this question:

a. Whether the Permit Improperly Exempts Limits for Iron, Manganese and Total Suspended Solids During Precipitation Events.

Petitioner alleges the Permit's inclusion of precipitation event discharge limitations violates Alabama's narrative water quality criteria. Precipitation event discharge limitations are an alternate set of limitations afforded a facility under certain conditions, and they do not automatically apply. (2/23 Tr. 227-229). *See also*, 40 CFR Part 434. They are a facet of EPA's uniform national effluent limitations for surface coal mines. (Id.). Thus, Riverkeeper must

prove by a preponderance of relevant evidence that, more likely than not, discharges of pollutants consistent with EPA's technology based effluent limitations for surface coal mines will either cause or contribute to an impairment of those uses.[2] ADEM Admin. Code r. 335-6-6-.14(e)(3); ADEM Admin. Code r. 335-2-1-.28(5). *E.g.* River Ridge Homeowners Association, AEMC No. 99-03 (petitioners must establish by a preponderance of the evidence that, more likely than not, discharges pursuant to NPDES permit violate NPDES regulations).

A permittee claims an exemption from generally applicable discharge limitations or post-mining discharge limitations after an applicable precipitation event, i.e., after the fact. (Ex. 116, p. 5-8). So, even if a permittee claims the exemption and it is granted, they are only exempted from compliance with EPA's national uniform effluent limitations. In other words, what might otherwise have been limits violations for that permittee would not be limits violations for that permittee if ADEM grants the exemption. Importantly, if ADEM grants the exemption, the permittee must still comply with water quality standards. ADEM would not – and could not – grant the exemption if ADEM determined the discharge had violated water quality standards. (2/23 Tr. 228-230, 235-236, 241-248).

The evidence Riverkeeper presented on this point is inconclusive and should be given little weight. Although Mr. Golden questioned Mr. Sisk's mass balance calculations, further witness testimony revealed Mr. Golden's mass balance calculations as unrealistic, flawed and irrelevant, namely due to his improper use of SEDCAD numbers.[3] (2/23 Tr. 84-86, 102-103, 272-276; 2/24 Tr. 77, 80, 92; Ex. 195). Additionally, his hydrograph is of no use because it reflects impossible conditions, and he admitted it is not a scientific measure of an actual effect.

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[2] Water quality criteria apply in the stream itself. (2/24 Tr. 155). Water quality criteria associated with the PWS use classification are the same as those for F&W, with the exception that human health criteria for certain toxics are more stringent for the PWS use classification. However, based on information submitted by Shepherd Bend, those compounds are not expected to be present in discharges from the mine. (Ex. 116; 2/24 Tr. 153-154).

[3] SEDCAD is a tool for pond design and is not appropriately used to predict impacts to water quality. (2/23 Tr. 102-103; 2/24 Tr. 71-74, 80, 92).

(2/22 Tr. 73-75, 84, 105; Ex. 194). His testimony regarding where sediment runoff will settle is not supported by any measurements or data. (2/23 Tr. 107). He has never designed a sediment pond or done any engineering work for a coal mine, has no training in SEDCAD, has not done any work with ASMC or reviewed ASMC regulations, and has never been to the Shepherd Bend site or done any sampling or testing at the site. (2/23 Tr. 107-109).

Another Riverkeeper witness, Dr. Barnett, opined that the documents submitted by Shepherd Bend were insufficient to justify the issuance of the Permit because they are not peer-reviewable, and also questioned why additional metals were excluded from the Permit; however, he stated on cross-examination that he is not aware of any regulatory requirements that a peer-reviewable report is necessary for an NPDES permit application, or that those metals be limited. (2/23 Tr. 120-122, 137-139, 151-154). While Dr. Barnett concluded that discharges under the Permit will violate water quality standards, he offered no data or studies to support his testimony, and there were many weaknesses in his expertise: He has never been to the Shepherd Bend site, has never designed or even seen a functioning sediment pond at a surface coal mine, never been engaged as an engineer for a mining operation, never prepared an NPDES application for a surface mine, never developed any data showing a correlation between metals in coal and effluent from the coal mines in the Black Warrior River, and has never studied or quantified the frequency of severely localized thunderstorms over the Shepherd Bend site. (2/23 Tr. 134-139; 150, 156, 158).

ADEM and Shepherd Bend objected to the testimony of Riverkeeper's third witness, Patrick Flannelly, because he was present as BWWB's proxy. As BWWB is not a party to this

proceeding, and Riverkeeper cannot represent the interests of the BWWB, Mr. Flannelly's testimony is irrelevant to this appeal.[4]

Riverkeeper's final witness, Dr. Rob Angus, testified that the TSS numbers calculated by Mr. Golden for ponds 5-8 during a 10-year, 24-hour storm would have a harmful impact on the ecological health of the stream, and that any level of TSS above 100 milligrams per liter will violate narrative water quality standards. (2/23 Tr. 207). Nevertheless, the Permit itself limits TSS to a daily average of 35 milligrams per liter and a daily maximum of 70 milligrams per liter, and, as noted above, Mr. Golden's calculations are flawed. (Ex. 116; 2/24 Tr. 80, 92). Also, the studies Dr. Angus used in forming his opinion are unreliable because they begin with the caveat that the effects of suspended sediments on fishes are not well-understood. (2/23 Tr. 215). Dr. Angus has not done any peer-reviewed publications or research on the environmental impacts of surface coal mining, has not done any water quality sampling for any of Shepherd Bend's receiving waters, has not done a bioassessment on any receiving waters, has no training with regard to toxicology of heavy metals, has no personal knowledge of the geology of the Shepherd Bend mine, hasn't calculated the quantity of metals that would be discharged under the Permit, and has not made any independent calculation of sediment discharges. (2/23 Tr. 212-214).

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[4] If the Hearing Officer finds Mr. Flannelly's testimony relevant to this appeal, his testimony should be excluded because it is unreliable. Solids discharged from mines are largely dirt from the mine site. (2/23 Tr. 252). BWWB did not test any of the soils at the Shepherd Bend site, but instead tested coal around the watershed to establish what metals exist in the watershed. (2/23 Tr. 173-192; Exs. 49, 81, 129, 156). Shepherd Bend's tests of the soils onsite, however, revealed those soils are non-acid producing. (2/24 Tr. 50). In addition, there was plenty of evidence that metals are not a concern: First, Lynn Sisk conducted conservative mass balance calculations using departmental, BWWB, and permit application data for background pollutant concentrations, and he concluded the Permit is protective of water quality standards for the Public Water Supply use. (Ex. 115). His opinion did not change after hearing Mr. Flannelly's testimony or any other testimony. (2/23 Tr. 257-259). Second, Mr. Sisk's conclusion was supported by Mr. Martin's mass balance calculations, which used BWWB data to establish there is not a reasonable potential for any heavy metals to be discharged in concentrations that would violate water quality standards. (2/24 Tr. 166-178, 212-213; Ex. 220). Third, the EPA Development Document for the coal mining limitations guidelines "indicates that toxic metal concentrations from mine discharges are expected to be at or below the detection limit, and concentrations of iron and manganese are expected to be at or below BPT and BAT levels during precipitation events." (Ex. 116).

On the other hand, the evidence put forth by Shepherd Bend and ADEM proves that the Permit is protective of water quality. Shepherd Bend designed its sediment ponds to capture sediment from a 10-year, 24-hour rain event, which is a six-inch rain predicted to occur once every ten years in a 24-hour period. (2/22 Tr. 156, 2/23 Tr. 84, 275, 2/24 Tr. 159). In preparing its permit application, Shepherd Bend used data from three mines similar to the Shepherd Bend Mine in locale, terrain, geology and coal seams. (2/22 Tr. 111-112, 120-128; Ex. 179). Shepherd Bend used that data to get a base number so that Shepherd Bend could elevate the numbers in the application to ensure that the environment is protected. (2/22 Tr. 131-132).

In reviewing Shepherd Bend's permit application, Lynn Sisk (a twenty-seven year veteran of ADEM's Water Quality Branch) accepted Shepherd Bend's numbers at face value because they seemed reasonable. (2/22 Tr. 172, 177-178; 2/23 Tr. 251-252). Mr. Sisk performed mass balance calculations for the permitted limits of iron, manganese and TSS under different flow scenarios based on the information in the application, information from BWWB, and departmental data. (2/22 Tr. 181, 187-195, 199; Ex. 115). In doing so, he made conservative assumptions. (2/22 Tr. 189; 2/23 Tr. 24, 260-261, 265; 2/24 Tr. 184-187, 228). For example, Mr. Sisk's calculations cover outfalls 1-10 and 23, when, in reality, only four outfalls will be constructed and operated. (2/22 Tr. 22, 2/24 Tr. 50; Ex. 115). Mr. Sisk's opinion that the Permit is protective of water quality did not change after reviewing BWWB's comments and hearing the testimony of Riverkeeper's experts. (2/22 Tr. 203-204; 2/23 Tr. 259). Also, Mr. Sisk testified he is not aware of any § 303(d) listed stream for which the impairment is attributable to active, legal surface mining. (2/23 Tr. 263). Finally, EPA received the draft Permit and did not comment on it or ask ADEM to make any changes to it. (2/23 Tr. 226-227). ADEM takes this absence of a response to mean EPA's concurrence with the draft permit.

The preponderance of the evidence shows that discharges pursuant to these limitations, after rain events, will not cause or contribute to an impairment of the designated uses of the receiving waters. Petitioners failed their burden on this issue.

b. Whether the absence of permit limits for sulfates, chlorides, aluminum, and total dissolved solids ("TDS") will violate Alabama water quality criteria.

With respect to any allegations of impaired use of waters designated for Public Water Supply, Riverkeeper has not alleged associational standing for the Birmingham Water Works Board. In the absence of proof of associational standing for BWWB, this issue must be dismissed. *E.g.*, Families Concerned About Nerve Gas Incineration, AEMC No. 97-17 (Commission's hearing process not to be used as a vehicle for vindication of value interests of concerned by-standers). Should Riverkeeper ultimately prove associational standing for the BWWB, Riverkeeper bears the burden to prove its contentions by a preponderance of the relevant evidence. ADEM Admin. Code r. 335-2-1-.28(5). The question is whether the discharge of any of these things can be expected in amounts that will cause or contribute to an impairment of the designated uses of the receiving waters. Any such alleged impairment must be detectable, not theoretical or hypothetical, to warrant disapproval of the Permit. Arkansas v. Oklahoma, 503 U.S. 91 (1992) (alleged harmful effects of discharge must be detectable to warrant vacating NPDES permit).

Riverkeeper alleges the Permit fails to include discharge limitations for sulfates, chlorides, aluminum, and TDS in violation of Alabama water quality criteria.[5] Riverkeeper contends, generically, that coal mines are known to discharge those things.

What a mine will discharge depends on what is in the dirt or rock at the mine, meaning that generally speaking, if something is not in the dirt at a mine, it is not expected to be

[5] Alabama has no numeric water quality criteria for TDS, sulfate, chlorides (commonly known as salt), or aluminum. *See*, ADEM Admin. Code r. 335-6-10-.09(5).

discharged from the mine in a measureable amount. (2/23 Tr. 252). Sulfates, chlorides, aluminum and TDS are virtually always associated with acid mine drainage because they are not naturally occurring, and acidity is required to bring them out. (2/24 Tr. 175-178). If the mine has no acidic condition, the opportunity for those constituents to form is very low. (2/24 Tr. 175-176).

Riverkeeper did not produce any data concerning the chemical composition of soils at the mine site suggesting these pollutants stand to be discharged from Shepherd Bend's mine. Neither did Riverkeeper put forth any data showing how Shepherd Bend's discharges will affect the pH in the river. (2/24 Tr. 238). What little evidence Riverkeeper did produce on this point was speculative and/or was presented via a disputed witness. (Ex. 195; 2/23 Tr. 61-62; 182-188).[6] The acidity testing Mr. Flannelly did as BWWB's independent engineer was on coal samples "from around the watershed," the results of which he admitted are "not conclusive" and showed only "one of the five samples...would tend to become acidic." (2/23 Tr. 182-186). Also, Mr. Flannelly tested coal – not soils – meaning he assumed Shepherd Bend's discharges of water and dirt will include the same contaminates as some of the coal in the watershed. (2/23 Tr. 191-192, 188, 252). Notably, Mr. Flannelly did not testify as to any negative impacts to water quality caused by the Red Star Mine, despite the fact that Red Star is in operation directly across the Mulberry Fork from the proposed Shepherd Bend site. (3/24 Tr. 78). Lastly, Mr. Golden conducted a mass balance calculation for only one these pollutants – aluminum – and his calculation was flawed and inaccurate. (Ex. 195; 2/24 Tr. 50-52, 76-79, 190-196; 2/23 272-278).

On the other hand, ADEM and Shepherd Bend presented more than enough reliable evidence to contradict Riverkeeper's claim. First, Shepherd Bend included in its application a

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[6] As noted in footnote 4, ADEM and Shepherd Bend dispute Patrick Flannelly's testimony because he was present as BWWB's proxy. BWWB is not a party to this proceeding, so Mr. Flannelly's testimony is irrelevant; however, if the Hearing Officer finds his testimony is relevant, his testimony remains unreliable and should be given little weight.

list of pollutants it expects in its discharges based upon data from three mines of the same locale, terrain, geology, and coal seams. (2/22 Tr. 102-108; Ex. 172). Using the application data, BWWB data, and departmental data, ADEM performed conservative mass balance calculations and determined that if Shepherd Bend meets all of its Permit limits and conditions (which are consistent with EPA's national effluent limitations guidelines), the water quality of the receiving waters will be protected. (2/23 Tr. 259-262, 265; Ex. 115). ADEM's mass balance calculations were reviewed and deemed sound by Shepherd Bend's expert, J. P. Martin, who has worked on several hundred to thousands of NPDES permits throughout his career. (2/24 Tr. 151, 184).

Second, there is "very little to zero likelihood" the Shepherd Bend mine will be an acid mine. (2/24 Tr. 176). As part of its ASMC permit requirements, Shepherd Bend performed an acid/base count on the soils and the horizons surrounding the coal seam at the mine, and determined that the soils are non-acid producing soils. (2/24 Tr. 49-50).

Third, the Permit includes discharge limitations for the common metals of concern in surface coal mining operations – iron and manganese. (Ex. 116). It is expected that achieving the total iron and manganese allocations will also address aluminum, if present. (Id.) This is because the treatment technologies for iron and manganese are the same as the treatment technologies for aluminum, meaning that if Shepherd Bend controls iron and manganese, they will also control any aluminum discharge. (2/23 Tr. 223-224). Also, EPA received the draft Permit and did not comment on it or ask ADEM to make any changes to it. (2/23 Tr. 226-227). ADEM takes this absence of a response to mean EPA's concurrence with the draft permit.

Petitioner failed to prove, by a preponderance of the evidence, that Shepherd Bend will discharge sulfate, salts or aluminum, let alone discharge those pollutants in concentrations that would cause or contribute to an impairment of the classified use of any stream that will receive discharges from the mine.

V. CONCLUSION

For all of the above reasons, the Hearing Officer should recommend the Alabama Environmental Management Commission approve NPDES Permit No. AL0079162 as issued.

Respectfully submitted this the 29th day of April, 2011.

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CERTIFICATE OF SERVICE

I, Schuyler K. Espy, hereby certify that I have served a copy of the foregoing "The Alabama Department of Environmental Management's Post-Hearing Brief with Proposed Findings of Fact and Conclusions of Law" by sending a copy of the same to each of the following in the below stated manner:

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