BEFORE THE ADMINISTRATOR
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

And

THE ENVIRONMENTAL PROTECTION AGENCY'S
OFFICE OF WATER

Docket No. _____

PETITION FOR RULEMAKING:

TO ESTABLISH NATIONWIDE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT FOR UNCOVERED RAILCARS TRANSPORTING COAL PURSUANT TO 33 U.S.C. § 1342(a)

Petitioners:

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Columbia Riverkeeper 2621 Wasco St., Suite A Hood River, OR 97031	Appalachian Voices 589 West King Street Boone, NC 28607
San Francisco Baykeeper 1736 Franklin St., Suite 800 Oakland, CA 94612	Southern Appalachian Mountain Stewards 113 E 4th Street S Big Stone Gap, VA 24219
Puget Soundkeeper Alliance 130 Nickerson St., #107 Seattle, WA 98109	Montana Environmental Information Center 107 W Lawrence Street Helena, MT 59601
Spokane Riverkeeper 35 W. Main Ave., Suite 308 Spokane, WA 99201	Sunflower Alliance PO Box 1934 El Cerrito, CA 94530-1934
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I. INTRODUCTION

Pursuant to 5 U.S.C. § 553(e) and the First Amendment's petition clause, Petitioners Sierra Club, Inc., New Virginia Majority, Natural Resources Defense Council, South Baltimore Land Trust, Appalachian Voices, Southern Appalachian Mountain Stewards, Sunflower Alliance, Montana Environmental Information Center, Spokane Riverkeeper, Columbia Riverkeeper, San Francisco Baykeeper, Puget Soundkeeper Alliance, Southern Plains Resource Council, Yellowstone Bend Citizens Council, Appalachian Mountain Advocates, and Public Justice ("Petitioners") respectfully submit the foregoing petition. Petitioners respectfully request that the Administrator of the United States Environmental Protection Agency ("EPA") and Office of Water engage in rulemaking to establish a nationwide Federal Water Pollution Control Act (hereinafter referred to as Clean Water Act or CWA) National Pollutant Discharge Elimination System ("NPDES") permit regulating the discharge of coal and other coal-related pollutants to navigable waters from uncovered rail cars transporting coal across the United States.

This petition follows a decision by the United States Surface Transportation Board in *Association of American Railroads-Petition for Declaratory Order,* Docket No. FD 36369 (Dec. 29, 2020).[1] According to the Surface Transportation Board ("STB"), these uncovered rail cars—statutorily-defined point sources under the CWA, 33 U.S.C. § 1362(14) ("rolling stock")—cannot be regulated on a state-by-state basis under the NPDES permitting program pursuant to the preemption provision of the Interstate Commerce Commission Termination Act

[1] The STB's decision is attached hereto as Exhibit 1.

("ICCTA"), 49 U.S.C. § 10501(b).[2] Per the STB, if the NPDES permitting requirements were applied to uncovered rail cars by individual states, "it would likely result in a patchwork of differing regulations that cannot be harmonized with § 10501(b) and therefore would likely be preempted."[3] However, the STB noted that regulation under a nationwide permit could be harmonized with ICCTA because a "nationwide permit, with only uniform requirements, would not create a patchwork of regulation of rail transportation that interferes with the free flow of interstate commerce."[4]

The STB's decision leaves a substantial gap in regulators' jurisdiction over surface water discharges under the CWA. Unless EPA steps in to fill that gap, the nation's waterways and those that use them will be injured by the significant harmful effects of pollution discharges from those rail cars. As explained herein, unburned coal and coal particles contaminate aquatic environments with harmful metals, chemicals, and other pollutants and adversely affect aquatic life.

Recognizing the dangers that unregulated coal pollution presents to the Nation's waterways, and with an eye toward the "national goal that the discharge of pollutants into the navigable waters be eliminated by 1985[,]" 33 U.S.C. § 1251(a)(1), Petitioners hereby request that EPA engage in rulemaking to establish a nationwide NPDES permit for the transportation of coal by open-top railcars in the United States. Such a uniform nationwide general permit takes into account the STB's concerns about a "patchwork" of potentially contradictory regulations while also ensuring that a statutorily-defined point source—"rolling stock"—is properly regulated under the jurisdiction of the Clean Water Act. In its opinion, the STB itself acknowledged that a nationwide general permit would not run afoul of ICCTA preemption.

Petitioners are available to confer with appropriate EPA staff upon request regarding this petition or any of the materials cited herein.

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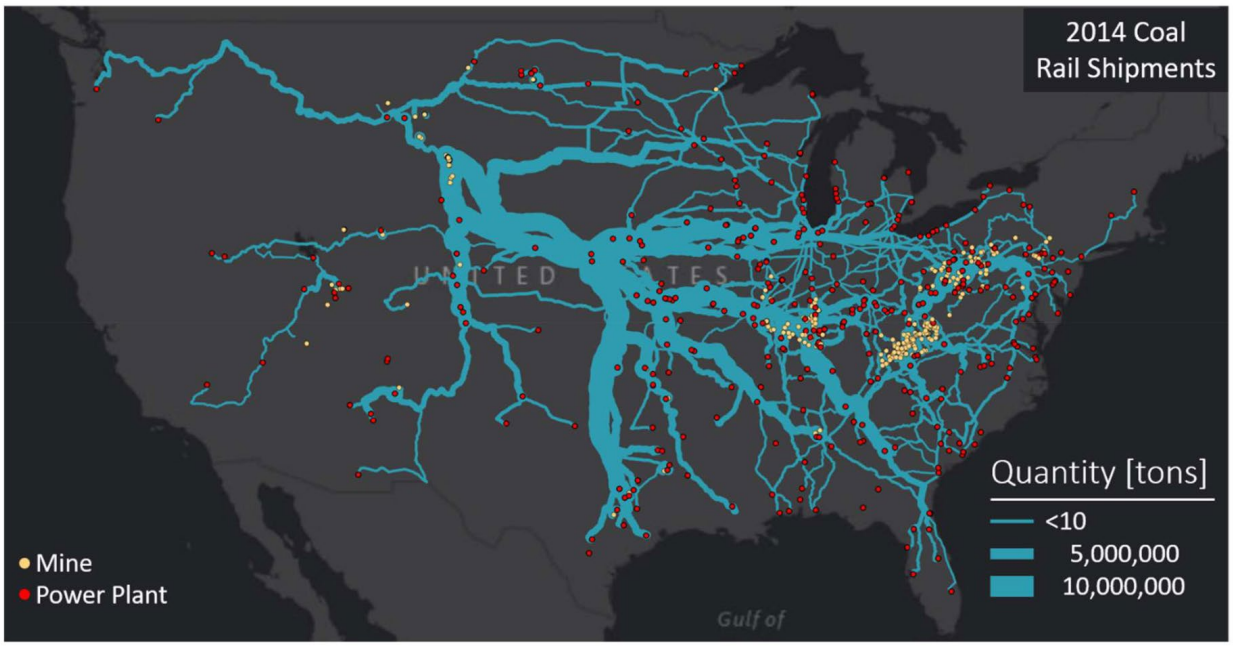
[2] That provision of ICCTA provides:

> "The jurisdiction of the Board over –
>
> (1) Transportation by rail carriers, and the remedies provided in this part with respect to rates, classifications, rules (including car service, interchange, and other operating rules), practices, routes, services, and facilities such as rail carriers; and
>
> (2) The construction, acquisition, operation, abandonment, or discontinuance of spur, industrial, team, switching, or side tracks, or facilities, even if the tracks are located, or intended to be located, entirely in one State,
>
> is exclusive. Except as otherwise provided in this part, the remedies provided under this part with respect to regulation of rail transportation are exclusive and preempt the remedies provided under Federal or State law."

[3] The STB held that the petition was premature because no state or railroad had applied for a NPDES permit at the time the petition was heard. STB Decision at 10. But the STB then issued an advisory opinion that if a NPDES permitting process began, it would be preempted by ICCTA.

[4] Ex. 1, STB Decision at 16-17.

II. FACTUAL BACKGROUND



Coal rail shipments for coal-fired power plants (Sherwood et al. 2020)

Coal has long been transported by rail in the United States, but that transportation has substantially increased in recent decades due to the export of coal to other countries, reaching a high in 2008 at over a billion tons. According to one publication, as of early 2022, "U.S. railroads have hauled more than 101 million coal carloads through May 7…a near 7% increase year-over-year. Year to date, Union Pacific's coal traffic is up 24% and BNSF Railway's is up 8%." The United States Energy Information Administration predicts that while coal production in the United States will decrease in 2023 and 2024, U.S. coal exports of both thermal and metallurgical coal will increase during those years.[5] Each day, tens of thousands of uncovered railcars are loaded with coal and transported throughout the United States, crossing an untold number of streams, rivers, and waterways. For many communities, the sights and sounds of 120-railcar long coal trains is common, as is the coal and coal dust pollution it brings with them.

As the industry expands and coal trains cross the landscape, the amount of coal and coal dust entering navigable waters grows substantially. Due to the absence of adequate federal oversight, these coal discharges are presently unregulated. Consequently, coal trains have become a significant source of water pollution across the United States, the adverse effects of which have received little scrutiny.

As described herein, **(a)** coal and coal dust discharges from moving coal trains take place continuously throughout a train's journey due to Aeolian or wind erosion, and direct

[5] https://www.eia.gov/outlooks/steo/pdf/steo_full.pdf

discharges result from coal car movement when crossing waterways. As a result, Petitioners have (**b**) discovered coal and coal dust particles in a variety of locations throughout the United States, from the Columbia River Gorge to the rivers and streams in Appalachia and beyond, evidencing these discharges are occurring. Based on publicly available GIS data about the locations of coal mines and the routes predominantly used by moving coal trains, these coal train discharges are (**c**) occurring daily along rail lines adjacent to waterways and at thousands of railway crossings throughout the United States. The discharges (**d**) cause substantial water quality and aquatic life concerns because unburned coal contains dangerous heavy metals and other pollutants known to degrade the environment.

The scope of the problem is national. The solution should be as well: require coal train operators to obtain a NPDES permit for their discharges of coal and coal dust into the Nation's navigable waters.

a. Coal and Coal Dust is Continuously Lost from the Tops of Moving Coal Trains in Transit.

There is no genuine dispute that open-top rail cars transporting coal lose coal and coal particles during transit. EPA need only listen to the railroads themselves. For instance, BNSF Railway and Union Pacific both studied the issue as it pertained to the Powder River Basin, finding that coal was contaminating the ballast underneath the tracks after it was blown off the tops of cars.[6] Indeed, BNSF imposed a tariff on coal shippers from mines requiring them to take certain steps intended to limit the amount of coal lost from coal cars during transit, which was litigated at the STB. In the decision that resolved that aspect of the litigation, the STB concluded that,

> [C]oal dust is a particularly harmful contaminant of ballast that requires corrective action. We give significant weight to USDOT's conclusion, based on Federal Railroad Administration (FRA) research, that coal dust interferes with track stability to a much greater extent than other contaminants present in the PRB. Unlike some other foulants, coal dust is not necessarily visible prior to a track failure, and coal dust's high volume relative to its weight and high moisture-absorbing capacity make it a unique problem. Even if the amount of coal dust varies throughout the PRB, that does not change its basic character as a ballast foulant.

Arkansas Electric Cooperative Cooperation – Petition for Declaratory Order, Docket No. FD35305, at 7. During that litigation, BNSF—a major transporter of coal—took the position that "it is indisputable that open-top cars are a major source of coal dust…[this] fact has been recognized elsewhere, including the state of Virginia, and the nations of Australia, Canada, and Columbia." *Id.* at 8. Testimony to the STB stated that each rail car loses at least 500 lbs. of coal, which means that for an average coal train length of 120 rail cars, at least 60,000 lbs. of coal is lost on each trip. Then BNSF Vice President Gregory Fox testified that "There

[6] *See, e.g.,* "Coal Dust Mitigation Update, Surface Transportation Board – RETAC, September 10, 2009," available at: http://www.swcleanair.gov/docs/coaltrains/BNSF%20coal%20dust%20presentation.pdf.

also can be no question that coal dust comes off the top of loaded coal cars in large quantities…"

Coal Train at Cassandra Crossing, West Slope, Pennsylvania.[7]

In 2013, coal shippers attempted to again challenge BNSF's tariff concerning the transportation of coal and the steps shippers must take to minimize the blow-off of coal during transit. The STB again reaffirmed its prior conclusion that "coal dust emissions from open-top railcars are fouling the ballast" and that operators like BNSF can impose requirements to reduce coal dust losses. *See* STB FD35557, "Corrected Decision, Reasonable of BNSF Railway Company Coal Dust Mitigation Tariff Provisions," at 8. The method chosen by BNSF involves the use of chemical surfactants that reduce dusting by up to 85%, but does not eliminate coal and coal dust losses during transit. *See id.* at 15. Notably, surfactants applied to coal are themselves "pollutants" under the CWA.

Beyond the admissions of the railroads that haul coal and the conclusions of the STB, as a matter of physics these discharges will continue to recur so long as coal is transported in uncovered railcars. Petitioners submit herewith a paper by Dr. Robert E. Breidenthal, a professor at the University of Washington that specializes in aerodynamics, fluid mechanics, and turbulence. As Dr. Breidenthal explains, all open top rail cars are subject to Aeolian erosion, also known as wind erosion. This physical process levitates and transports coal and coal dust out of moving railcars and onto nearby ground and water. Once coal particles are lifted from the tops of moving rail cars, their trajectory is subject to gravity and air turbulence. The rate of particle erosion increases rapidly with wind speed, and wind speed itself is influenced by the speed at which a train is moving.

[7] Still image taken from publicly available video footage on Youtube.com, available at <https://www.youtube.com/watch?v=gjhnhZ0mFb4>.

As Dr. Breidenthal writes,

> When a rail car is loaded with coal at a mine, there is an initial spectrum of particle sizes, including very small particles. In addition to fine particles arriving during the loading process, subsequent jostling of the rail car while in motion generates new particles, as larger pieces of coal grind against each other and against the inner walls of the hopper. Because of the height of the hopper, the weight of the column of coal generates significant hydrostatic pressure, especially near the bottom of the hopper. Sufficiently small particles generated at the bottom of the hopper can be lifted by air currents there and carried overboard. A local breeze comparable to the particle settling speed will tend to carry the particle away. The settling speed is the product of the acceleration of gravity and the inertial response time of the particle.
>
> The airflow over a moving coal car is turbulent, with significant regions of separated flow along with pressure and velocity fluctuations. On a smaller scale, the pieces of coal form a rough surface, with many separated flows in the wakes of individual pieces. The speed of the airflow in the interstitial spaces between pieces of coal decreases with depth below the surface of the coal. The grinding together of adjacent coal pieces can generate fine dust that then falls through the air beneath those pieces, to be readily carried away by even low-speed air motions. Once small particles are away from a surface, they no longer need to be levitated up from a surface.

Exhibit 2 hereto, Dr. Breidenthal Paper, "Aeolian erosion of coal dust from open rail cars."

The amount of coal lost during transit is subject to a variety of environmental factors, but there can be no dispute that coal is lost, and in amounts that harm the environment. For instance, Jaffe *et al.* (2015) used sophisticated monitoring equipment to conclude that substantial amounts of coal dust were emitted by passing coal trains. As Dr. Breidenthal describes, that study found that a typical coal particulate concentration was on the order of 100 micrograms per cubic meter, corresponding to a coal particulate density of 10^6 per cubic meter for spherical particles of 2.5 microns in diameter. Ex. 2 at 2. Based on this study, and using conservative estimates for an environment with higher moisture, Dr. Breidenthal estimates that each coal car releases at least 6000 small coal particles per second during its journey. *Id.* at 3. The Jaffe study itself concluded:

> We also found that nearly all coal trains emit coal dust based on (1) statistically higher $PM_{2.5}$ enhancements from coal trains compared to freight trains; (2) the fact that most coal trains showed a weak correlation between $PM_{2.5}$ and CO_2, whereas most freight trains showed a strong relationship; (3) a statistically lower $BC/PM_{2.5}$ enhancement ratio for coal trains compared to freight trains; and (4) a statistically lower $PM_1/PM_{2.5}$ enhancement ratio for coal trains compared to freight trains. Our results demonstrate that, on average, passage of a diesel powered open-top coal train result in nearly twice

as much respirable $PM_{2.5}$ compared to passage of a diesel-powered freight train.[8]

The image below is from one of the dusting trains captured in the Jaffe study, showing Aeolian erosion causing the lifting of coal and coal particles, which are then redeposited in the surrounding area and discharged to adjacent waterways.

That coal and coal dust are continuously lost during transit is consistent with the conclusions reached by industry itself. For instance, in connection with the STB coal dust tariff litigation, BNSF publicly stated that each coal car it transported lost 225 pounds of coal per car during a 567-mile trip.[9] In another estimate, BNSF stated that each coal car it transports loses at least 500 lbs. of coal between the Powder River Basin and export terminals. BNSF's own website on coal dust reportedly stated that "BNSF has done studies indicating that from 500 lbs. to a ton of coal can escape from a single loaded coal car. Other reports have indicated as much as 3% of the coal loaded into a coal car can be lost in transit."[10]

Within the judicial context, one federal judge found that open-top railcars which discharge coal in transit over or adjacent to navigable waters are jurisdictional "point source" discharges under the CWA. In *Sierra Club et al. v. BNSF Railway Co.*, Case No. C13-967-JCC (W.D. Wash. Oct. 25, 2016), The Honorable John C. Coughenour held that:

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[8] D. Jaffe *et al.*, Atmospheric Pollution Research 6 (2015) 946-952.
[9] Scott Learn, "Coal Clash: Dust up over how much blows off on trains through Oregon, Washington," The Oregonian June 30, 2012, available at: <http://www.oregonlive.com/environment/2012/06/coal_clash_dust_up_over_how_mu.html> (last accessed July 21, 2023).
[10] Eric de Place, "At Least the Website is Clean: What the railroads don't want you to know about coal dust." Sightline Institute August 10, 2011, available at: < https://www.sightline.org/2011/08/10/at-least-the-website-is-clean/> (last accessed September 6, 2023).

> [I]t is undisputed that '[a]ll [BNSF] coal trains generate coal dust during various periods while in transit.' (Dkt. No. 209-7 at 4). It is also undisputed that BNSFs trains run directly next to and over many of the waterways at issue…In this matter, coal particles were allegedly emitted directly over navigable waters. Thus, the Court finds that the coal particles allegedly discharged by BNSF trains that travel adjacent to and above the waters at issue are point source discharges because there is a discrete conveyance: the BNSF trains that travel directly next to or across the water.

Id. at 18-19.

Table 1 below is from Exhibit 3, a scientific literature review prepared by Petitioners and submitted herewith. It contains reported discharge rates from available academic literature. Rates of discharge vary, **but in every example coal was lost from the studied railcar or other coal-specific infrastructure:**

Table 1. Discharge Rates: emission, deposition, and/or spillage rates of unburned coal during coal distribution	
Reported rate	**Source**
Erosion from railcars	
800–1200 g / km / wagon	Jaffe et al. 2015
0.8–1.2 g / km / semi-covered wagon	Ferreira et al. 2003
4.5–27 g / ton / wagon	Cope et al. 1984
281 g / km / wagon	Lazo et al. 1996 in: Ferreira et al. 2003
9.6 g / km / wagon	Katestone Environmental Pty Ltd. 2013
0.5–3% total carload / train / 1100 km	Cope et al. 1984
Deposition rates	
15.1 mg / m^3 / train	(Cope et al., 1984; Ferreira et al., 2003; Katestone Environmental Pty Ltd, 2013
16.4 um / m^3 / train	(Cope et al., 1984; Ferreira et al., 2003; Katestone Environmental Pty Ltd, 2013
17.5 um / m^3 / train	(Cope et al., 1984; Ferreira et al., 2003; Katestone Environmental Pty Ltd, 2013
120 mg / m^3 /day	Katestone Environmental Pty Ltd. 2013
6.89 mg / dm^2 / day	Delta Corporation in: Akaoka et al. 2017
4.71 mg / dm^2 / day	Delta Corporation in: Akaoka et al. 2017
0.66 mg / dm^2 / day	Delta Corporation in: Akaoka et al. 2017
0.71 mg / dm^2/ day	Delta Corporation in: Akaoka et al. 2017
0.2 g / m^2 / year	Sydor and Stortz 1980

100 g / m^2 / year	Sydor and Stortz 1980
Discharges related to shipping	
0.4 lbs / ton transferred	USCG in: Biggs et al. 1983
0.168 lbs / ton transferred	State of Delaware in: Biggs et al. 1983
0.0024 lbs / ton transferred	State of Delaware in: Biggs et al. 1983
6.4–1500 tons/ 3 million tons	State of Delaware in: Biggs et al. 1983
20–260 kg / carrier vessel loaded	Sydor and Stortz 1980

In sum, even accounting for reductions achievable through the use of sprayed-on surfactants, coal and coal dust is lost in substantial quantities throughout the journey each open-top railcar takes from mine to export facility or other final destination. At least one major railroad, BNSF Railway Co., is presently investigating the efficacy of covers for open-top railcars in connection with a consent decree entered in the above-captioned case of *Sierra Club et al. v. BNSF Railway Co.* (W.D. Wash.). Such covers present one potential method that could be applied uniformly through a nationwide general permit to control discharges from coal-carrying rail cars.

b. Coal and Coal Dust is Commonly Found In and Near Navigable Waters Underneath or Adjacent to Railroad Tracks Throughout the United States.

Throughout the United States, when citizens go looking for coal near a railroad that coal trains use, they find it. Whether the location is along the Columbia River Gorge, or on the beaches of the Puget Sound, or in the communities living near Norfolk Southern's Lambert's Point coal expert terminal in Norfolk, VA, or under the bridges of the many streams in Virginia and West Virginia, coal is ubiquitous. It lines the sides of the track, it builds up in the ballast and on the rocks of causeways, and it is found in and near the water.

Petitioners submit herewith evidence of just some of the locations where concerned citizens have discovered coal. Petitioners encourage EPA to undertake its own investigations with EPA-led scientific teams to study similar railroad crossings in the United States. Below, Petitioners summarize some of the evidence they have collected concerning coal discharges. Petitioners have established a Box.com portal containing exhibits to this Petition, photographs, videos, and other relevant information for EPA's review and consideration. The site may be accessed here: <https://app.box.com/s/9edg5013ca7z9amlq63trt4gskt55vl1>.

i. Evidence of Coal Discharges in the Pacific Northwest.

In the Pacific Northwest, coal trains are a frequent sight. BNSF, the primary transporter of coal in the Pacific Northwest, makes use of rail lines that depart from the Powder River Basin, travel through Montana and Idaho, and eventually enter the State of Washington. They then travel south toward the Columbia River, passing through Pasco and heading west. The trains then turn north, through Longview, Chehalis, and eventually through Seattle where they travel adjacent to the Puget Sound, on their way into Canada to one of the export facilities such as Westshore Terminals.

In the *Sierra Club v. BNSF Railway Co.* litigation, citizens submitted sworn declarations describing how whenever they searched for coal near BNSF's railroad, they found it. Petitioners provide those declarations within the portal identified *supra* for EPA's review. The declarations go into detail on how the plaintiffs in that lawsuit uncovered widespread evidence of coal discharges from the Spokane River, to the Columbia Gorge, all the way up to BNSF's rail lines along the Puget Sound. For instance:

- **Spokane River**. Members and volunteers of Spokane Riverkeeper found coal and coal particles under BNSF's railroad crossing the Spokane River and Latah Creek in 2013. Samples were obtained, below the ordinary high-water mark, and the majority tested positive for subbituminous coal of the type from the Powder River Basin. Below is a photograph of one of the sampling locations:

Figure 1: Coal Sampling Location Under Rail Bridge Over Spokane River

- **Columbia River Gorge**. The Gorge itself is approximately 80 miles long. Citizens collected evidence of coal from multiple locations throughout the Gorge near BNSF's tracks. For instance, coal was collected at locations near the confluence of the Wind River and the Columbia River, under the BNSF tracks; under the BNSF rail bridge that crosses the Klickitat River, where it meets the Columbia River; at Drano Lake, the location where the Little White Salmon River enters the Columbia; at Horsethief Lake; and at a variety of other locations, as described in the declarations. The photographs below represent some of the sampling locations and coal that was found. Petitioners are also including herewith a video of a BNSF coal train crossing Horsethief Lake adjacent to the Columbia River Gorge, showing coal being blown off the train and into the water by Aeolian erosion. *See* "Ex_1423 – FOCG_003051.AVI."

Figure 2: Coal Found Under BNSF Bridge at Confluence of Wind River and Columbia River

Figure 3: Coal Found Adjacent to BNSF Railway at Columbia River and Wind Mountain

Figure 3: Coal at Klickitat River Bridge


Figure 4: Coal at Klickitat River Bridge


Figure 5: Coal Accumulations on Roadway Bridge over Drano Lake, Adjacent to BNSF Bridge over Same Waterway


Figure 6: Depth of Coal Accumulation at Location Next to BNSF bridge at Drano Lake

Figure 7: Coal Accumulations at Horsethief Lake, Columbia River

Figure 8: Coal Accumulations at Horsethief Lake, Columbia River

Petitioners refer EPA to the declarations and exhibits submitted herewith, which contain additional photographs, dates of investigation, and areas of sampling.

- **Puget Sound Area**. Evidence of coal discharges has also been documented in and around the BNSF railway in the Seattle, WA area, and around the Puget Sound as a whole. Citizens collected coal from underneath BNSF rail bridges at the Green River, Ballard Locks, and along Beverly Beach on the Puget sound. The photographs below represent some of the sampling locations and coal that was found.

Figure 9: Coal Investigation Site under BNSF Railway Bridge at Green River, near Seattle

Figure 10: Coal pieces Found at Investigation Site under BNSF Railway Bridge at Green River, near Seattle

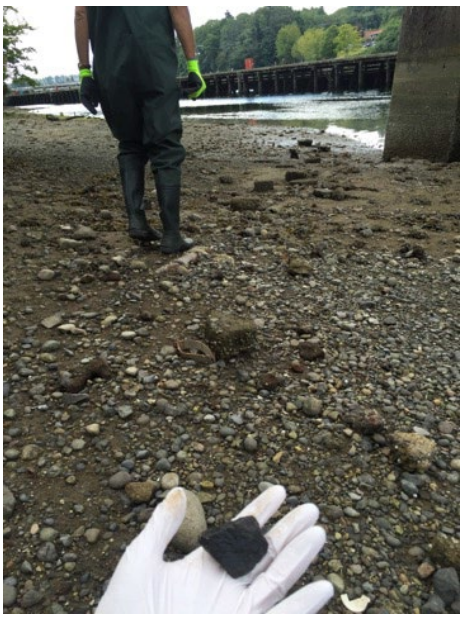

Figure 11: Coal found under BNSF Bridge at Ballard Locks, Seattle

Figure 12: Collection of Coal Pieces Collected under BNSF Railway Bridge at Ballard Locks, Seattle

Figure 13: Looking up from Skagit River and BNSF Bridge

Figure 14: Coal Pieces Found under BNSF Bridge at Skagit River, Next to Waterway

Petitioners further refer EPA to the videos provided herewith of coal being found at Golden Gardens beach, showing coal pieces being found in the sand adjacent to BNSF's rail line. *See* EX_1371 – "PUGET_SOUNDKEEPER_001488.m4v," and "PUGET_SOUNDKEEPER_004731.MP4."

These images and those provided herewith are representative samples of the times and places where Petitioners' members and other concerned citizens have found coal along rail lines near waterbodies in the Pacific Northwest. One need only lawfully explore areas in and near the rail lines to find more coal, both in and out of the water. In this region, there is only one source of this coal: the coal trains and the thousands of uncovered coal cars they transport daily from the Powder River Basin through the Pacific Northwest. As one Federal Jurist put it, if the coal wasn't discharged from these coal trains, then how did it get there? "Do you think it was sprinkled by the coal fairy?"[11]

ii. Evidence of Coal Discharges in the Eastern United States.

Discharges from uncovered rail cars transporting coal are not limited to the Pacific Northwest. Indeed, by virtue of the physical rule of Aeolian erosion, coal and coal dust losses occur everywhere in the United States that uncovered coal trains travel. When those trains travel over or adjacent to surface water bodies, they discharge pollutants to those navigable waters in violation of the Clean Water Act.

In the Eastern United States, Petitioners have undertaken additional sampling from public vantage points and right-of-ways. Similar to the results presented about Pacific Northwest, everywhere Petitioners look, they find evidence of coal discharges. The photos below represent just some of the locations where Petitioners' volunteers have discovered coal in and near rivers over which coal trains travel.

- **Blackwater River near Zuni, Virginia**. Zuni is a small town located northwest of Suffolk, Virginia. A major rail line for coal transportation runs adjacent to State Highway 460, and crosses over the Blackwater River at Zuni. The Google Map image below shows this location:

Figure 15: Location of Railroad Bridge over Blackwater River near Zuni, VA

[11] Trial Transcript, *Sierra Club et al. v. BNSF Railway Co.*, Case No. C13-00967-JCC, 43:13-17 (Verbatim Proceedings of Trial Before the Honorable John C. Coughenour, November 9, 2016) (attached hereto as Exhibit 4).

Petitioners have investigated this site from public vantage points and public right-of-ways. The following images depict the coal that has been found at this site over two different periods of time:

Figure 16: Coal in Blackwater River under Railroad Bridge

Figure 17: Coal in Blackwater River under Railroad Bridge

Figure 18: Coal in Blackwater River under Railroad Bridge

Figure 19: Coal Picked Out of Water by Volunteer at Location under Railroad Bridge at Blackwater River

Figure 20: Coal Chunk Found under Railroad Bridge over Blackwater River

Figure 21: Coal Chunk Found under Railroad Bridge over Blackwater River

- **St. Mary's River, George Washington & Jefferson National Forest, Virginia.** Petitioners have investigated a location along the St. Mary's River near the George Washington National Forest, in Virginia. The Google Map image below shows this location:

Figure 22: Google Map image of Location of Railroad Bridge over St. Mary's River

Petitioners have investigated this site from public vantage points and public right-of-ways. The following images depict the coal that has been found at this site:

Figure 22: St. Mary's River Underneath Railroad Bridge

Figure 23: Coal Chunk Found at St. Mary's River under Railroad Bridge, below Ordinary High-Water Mark

Figure 24: Coal Pieces Found at St. Mary's River under Railroad Bridge, below Ordinary High-Water Mark

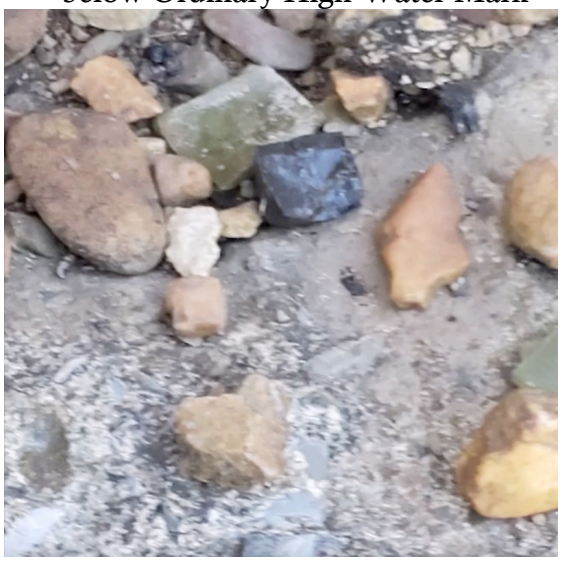

Figure 25: Coal Chunk Found at St. Mary's River under Railroad Bridge, below Ordinary High-Water Mark

Figure 26: Coal located in Water in St. Mary's River, Observed under Railroad Bridge over St. Mary's River

Figure 27: Coal Chunks Removed from St. Mary's River at Location under Railroad Bridge

- **Clinch River, near Artrip, Virginia.** Petitioners have investigated a location along the Clinch River, near Artrip, Virginia. The Google Map image below shows this location:

Petitioners have investigated this site from public vantage points and public right-of-ways. The following images depict the coal that has been found at this site:

Figure 28: Photograph of Railroad Bridge over Clinch River near Artrip, Virginia

Figure 29: Photograph of Rail Bridge identified in Figure 28 over Clinch River

Figure 30: Coal Chunks collected Under Railroad Bridge from Water at Clinch River

Figure 31: Coal Chunk Located Below Ordinary High-Water Mark, in Damp Location, Under Railroad Bridge at Clinch River

Figure 32: Coal Pieces Located on Large Rock Directly Under Railroad Bridge Crossing Clinch River

Figure 33: Coal Chunks and Pieces in Damp Sand, Below Ordinary High-Water Mark, under Railroad Bridge Crossing Clinch River

Figure 34: Coal Pieces that were Collected by Brush on Rock Located Next to Clinch River, under Railroad Bridge

Figure 35: Same Rock as Depicted in Figure 34, But From Different Investigation Date, Showing Coal Continuing to Accumulate Under Railroad Bridge Crossing Clinch River

Figure 36: Same Rock as Figures 34 and 35, But on Different Day, Showing Additional Coal Accumulating Under Railroad Bridge Crossing Clinch River

Figure 37: Same Rock, Different Date, Again Showing Accumulating Coal Particles from Railroad Bridge Over Clinch River

The images above are only a representative sampling of Petitioners' investigations at this particular location. Petitioners are submitting herewith reports of investigations completed at this specific location between 2019 and 2021. Each time Petitioners' volunteers reached this site, they found coal, even after precipitation events that would have washed coal from the rocks depicted above into the river. Petitioners also submit herewith laboratory sampling of the coal pieces that volunteers removed from public waterways,

which show that the overwhelming majority of samples obtained could be identified with certainty as coal.

iii. Evidence of Coal Dusting in Norfolk, Virginia.

Norfolk, Virginia is home to one of the largest coal export facilities in the United States, Norfolk Southern's "Lambert's Point" coal export terminal. According to Norfolk Southern's website:

> Lamberts Point Coal Terminal is an NS-served and operated transshipment terminal located on the Elizabeth River in Norfolk, Va. Annual throughput capacity is 48 million tons. The heart of the terminal is Pier 6, which has two ship loaders that permit the facility to load two vessels simultaneously. Twin tandem rotary dumpers feed the ship loaders for a combined dumping capacity of up to 8,000 tons per hour. Vessel loading rates are augmented by two surge silos.
>
> Pier 6's versatility allows the loading of vessels ranging in size from small coastwise barges to large Cape-sized vessels. The pier is 1,850 feet long. Both loading berths and the layberth have been dredged to allow loading to a 50-foot draft. The ship loaders can accommodate vessels with a beam of 175 feet and an air draft of 74 feet.
>
> Complete coal blending and mixing is available for both metallurgical and steam coal applications. A 4-stage sampling system, operated independently by Sampling Associates International, is available to provide ASTM- ISO-approved samples for all cargoes.
>
> Lamberts Point operates 24 hours a day, seven days a week.

Substantial amounts of coal are transported by rail to Lambert's Point, with neighbors in the vicinity of the loading facility reporting multiple coal trains arriving daily. Indeed, for this community, the reality of constant coal losses has been known for some time. As one publication describes, "1,000 tons of the 90,000 tons of coal shipped in open carriers to Newport News and Norfolk [Lambert's Point] terminals disappears into the air."[12]

These same neighbors have borne the environmental consequences of coal transportation by uncovered rail car. Citizens report of needing to clean their cars and homes frequently to remove coal dust and particulate matter that is constantly accumulating in the vicinity of nearby rail lines. Petitioners submit herewith testimonials from a variety of individuals, including many that live in and near Lambert's Point. These individuals describe their experiences with coal dusting and how it impacts their homes, their health, and their community.

[12] Sarah Vogelsong, "Virginia will begin monitoring air pollution around Hampton Roads coal terminals," Mercury News, < https://www.virginiamercury.com/2022/04/19/virginia-will-begin-monitoring-air-pollution-around-hampton-roads-coal-terminals/> (last visited April 4, 2023).

The coal dusting and loss of coal particles is axiomatic evidence of Aeolian erosion and the physical principle that uncovered coal cars will lose coal in transit. Indeed, Petitioners understand that the Virginia Department of Environmental Quality is presently engaged in an effort to monitor air quality in and around the Lambert's Point community due to coal dust contamination.

iv. Evidence of Coal Dusting in San Francisco, CA

Uncovered coal trains travel to the San Francisco Bay area to deliver coal for export from the United States. Primarily, these exports occur from the Levin-Richmond Terminal in Richmond, California, and from the Port of Stockton in Stockton, CA. The coal arrives in uncovered train cars (generally operated by Union Pacific). The trains come primarily from Colorado, Wyoming, and Utah, carrying coal in their uncovered cars during their trip to Stockton and Richmond. Union Pacific ships coal on uncovered cars through northern Nevada and into Northern California where it follows the Sacramento River, passes through the Sacramento-San Joaquin River Delta, and along waterways and through communities between Sacramento and the East Bay where it is eventually delivered for export.

The export of coal from Richmond and Stockton has increased dramatically in recent years. Data from the U.S. Census Bureau, which tracks trade, shows that coal exports through the Levin Richmond terminal skyrocketed from 120,000 metric tons in 2016 to 738,000 in 2019, a 615% increase.[13] This is accompanied by a massive increase in the amount of coal shipped on uncovered cars from the Rocky Mountains to the Bay Area.

The uncovered coal cars, both on train tracks during transport, and at holding facilities in Richmond pollute nearby air and waterways. A March 2023 study published in Air Quality, Atmosphere & Health by researchers from University of California Davis determined that the rail conveyance of coal is a source of particulate matter and reported evidence of "significant increases in $PM_{2.5}$ due to passing coal-carrying trains in Richmond, California."[14] This is in addition to the known deposition of both coarser and finer particles that impact communities and waterways that receive extended exposure to passing coal trains as the rails follow rivers and run through environmental justice communities in the Bay Area.

San Francisco Baykeeper has a long history of fighting to reduce and eliminate the harm to communities, the San Francisco Bay and its tributaries from coal production, transport, export, and ultimate burning. In 2012, Baykeeper sued the Levin-Richmond Coal Terminal alleging that they were violating their Clean Water Act permit by allowing petcoke and coal to enter the Bay. Since then, Baykeeper has participated in both advocacy and legal action to eliminate the export of coal from Oakland, Richmond, and other parts of

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[13] *See* https://www.cbsnews.com/sanfrancisco/news/coal-country-levin-richmond-marine-terminal-battle-utah-coal-petcoke/

[14] Ostro, et al., The impact of coal trains on $PM_{2.5}$ in the San Francisco Bay Area, AIR QUALITY, ATMOSPHERE & HEALTH, March 20, 2023 at p. 7, available at <https://link.springer.com/article/10.1007/s11869-023-01333-0>.

the Bay Area. Baykeeper's members use the waterways near and around (a) the Levin-Richmond Terminal, (b) in and around the San Francisco Bay and Carquinez Strait where the coal trains run near or over the water, and (c) in and around the Port of Stockton. Baykeeper's members are impacted by the coal pollution from uncovered coal transport.

v. Public Evidence of Coal Trains Losing Significant Coal in Transit.

Beyond Petitioners' own investigations, many concerned and interested citizens have documented coal dusting and losses throughout the United States. Often times these citizens are train and railroad enthusiasts, but others are simply recording what they see as an environmental and health problem. The 32 videos cited in Exhibit 5 that are provided herewith were obtained from public channels on Youtube.com. They show moving coal trains losing coal from open-top coal cars. The videos are from Virginia, Pennsylvania, and Ohio, and elsewhere. In some videos, one can hear the videographer describing the noise of coal particles hitting the ground. In another example, the audience hears the complaint of the videographer that he must "breathe this [expletive] all day."

These videos provide telling demonstrations of just how commonplace coal losses are in the ordinary course of coal transportation by rail. Some videos depict "super-dusters," or loaded coal trains that show huge losses of coal and coal particles from the tops of the uncovered rail cars. Every time these losses occur adjacent to or overtop of waterways, they result in the discharge of pollutants.

c. Discharges of Coal to Navigable Waters are Occurring Daily at Thousands of Railway Crossings in the United States.

Petitioners lack the resources and volunteers to monitor every rail crossing at every navigable water in the United States. Such an undertaking is best left to federal environmental regulators. Based on publicly available data concerning coal train movement, the location of coal mines, and coal export terminal and shipping facilities, however, Petitioners have prepared a GIS model for the Pacific Northwest and areas of the Eastern U.S. detailing the number of surface water crossings over which coal trains travel. Exhibit 6 hereto, entitled "Streams crossed by coal-transport railroad lines," describes the methodology and data sources used for this model. The analysis revealed that, "railroads used for coal transport cross streams at approximately 5,100 locations along more than 1,200 streams in West Virginia and Virginia." Some rivers are crossed multiple times by railroads, such as the Tug Fork in West Virginia and the Clinch River in Virginia. The Table below summarizes stream-crossing data for West Virginia and Virginia and does not account for the many crossings of these streams' tributaries:

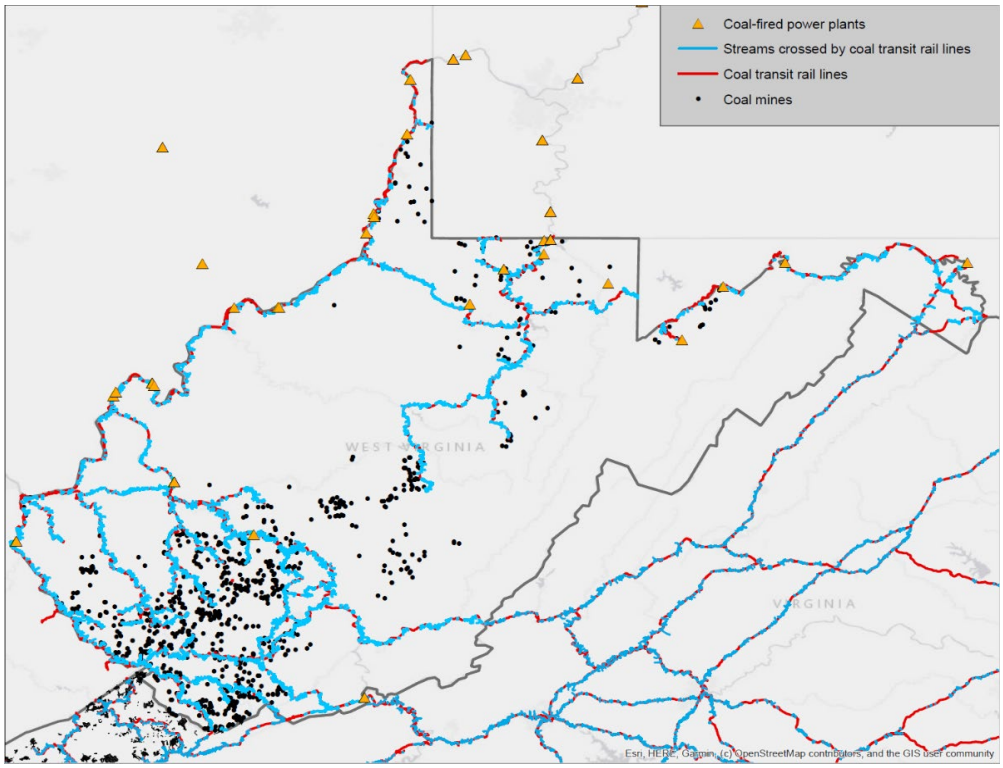
Stream name	Number of crossings	State
Tug Fork	29	West Virginia
Clinch River	26	Virginia
Piney Creek	26	West Virginia and Virginia

Elkhorn Creek	23	West Virginia
Laurel Creek	21	West Virginia
Roanoke River	20	Virginia
Mill Creek	17	West Virginia and Virginia
Pond Fork	17	West Virginia
South Fork Fishing Creek	17	West Virginia
Cabin Creek	16	West Virginia and Virginia
Guest River	16	Virginia
James River	16	Virginia
Loop Creek	16	West Virginia
North Fork Powell River	16	Virginia
Big Branch	15	West Virginia and Virginia
Buffalo Creek	15	West Virginia and Virginia

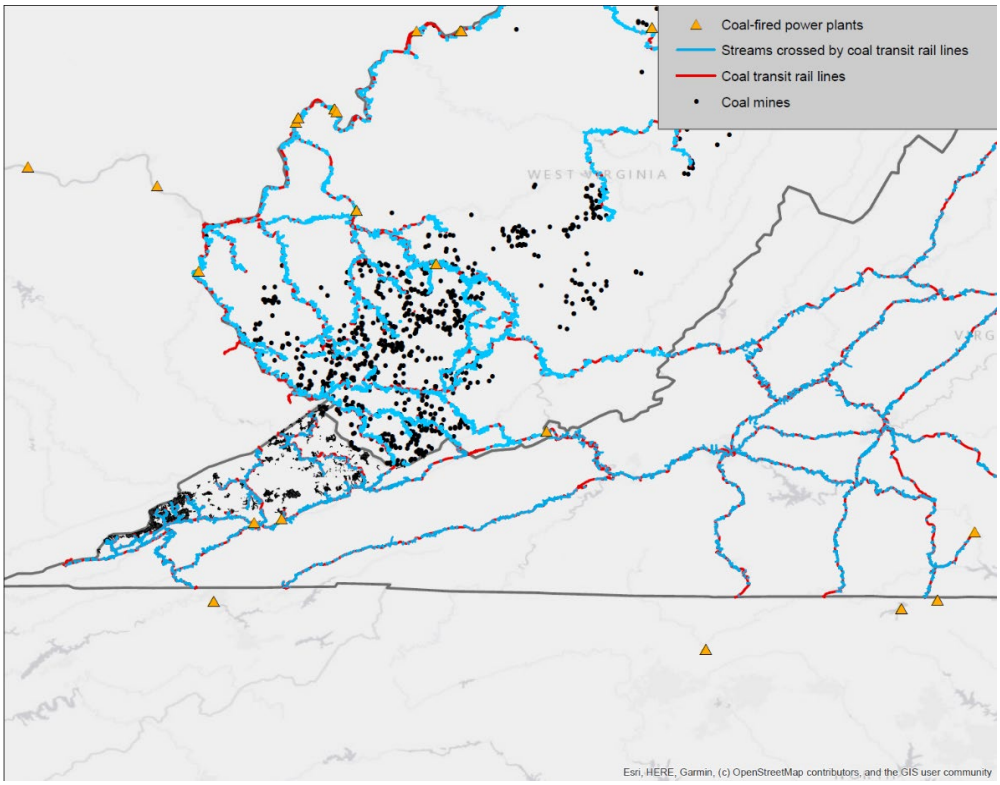
In the Pacific Northwest, petitioners have identified 5,287 stream crossing by rail lines for coal train routes in Idaho, Montana, Oregon, Washington, and Wyoming:

State	Number of crossings
Idaho	278
Montana	1,348
Oregon	362
Washington	1,245
Wyoming	2,054
Total	5,287

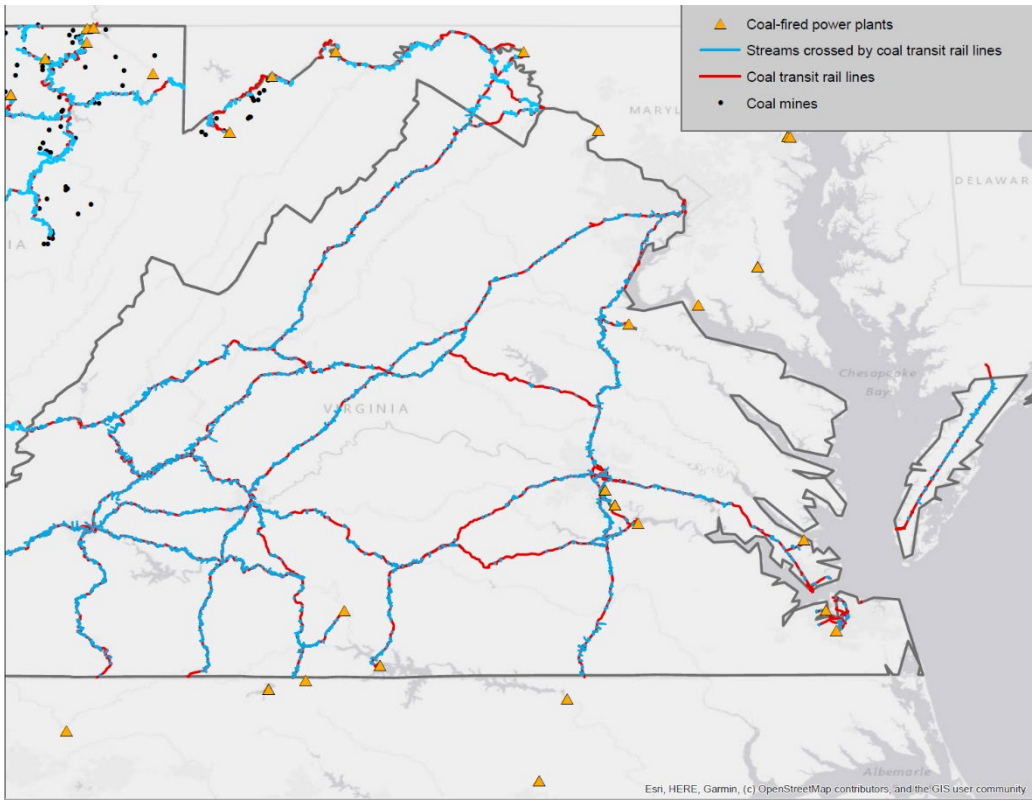
The following maps illustrate the various stream crossings in West Virginia, southwest Virginia, eastern Virginia, and the Pacific Northwest. They show just how common it is for uncovered rail cars transporting coal to cross or travel adjacent to a navigable waterway subject to the jurisdiction of the Clean Water Act.



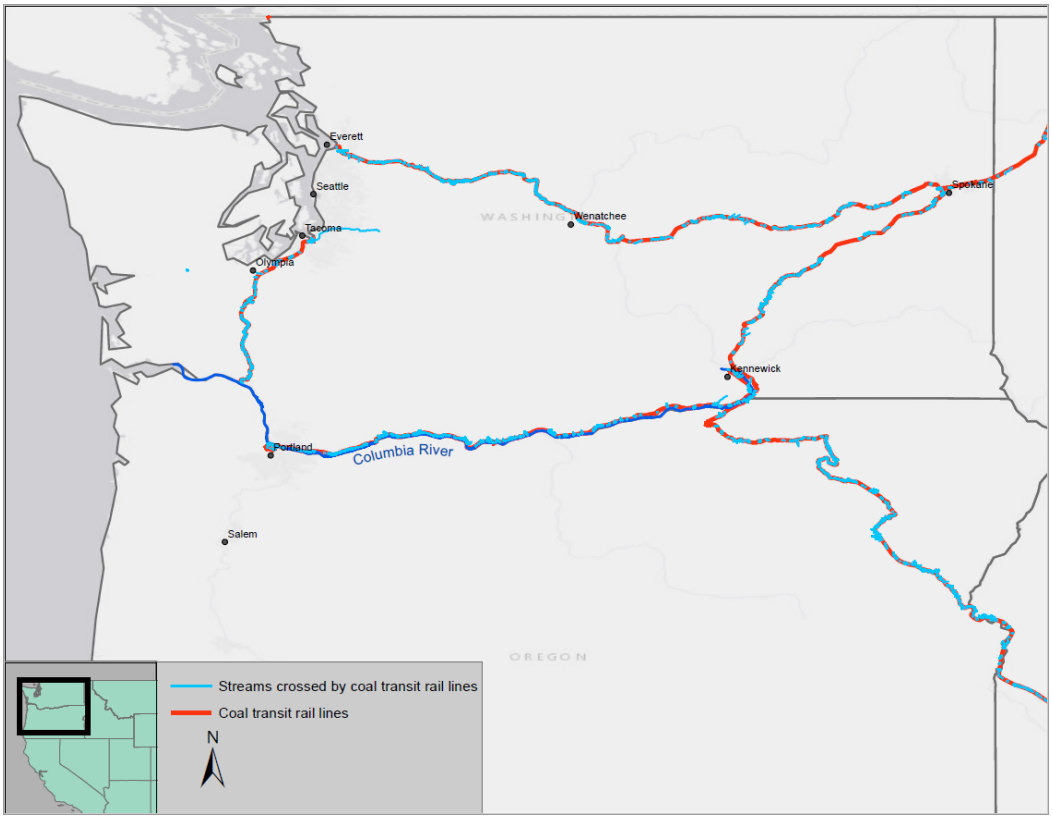
Coal Train Rail Stream Crossings, West Virginia



Coal Train Rail Stream Crossings, Southwest Virginia



Coal Train Rail Stream Crossings, East Virginia



Coal Train Rail Stream Crossings, Washington

Petitioners provide these maps along with background information to EPA to illustrate the national scope of the problem. Based on industry's own admissions about how frequently coal is lost from the top of uncovered rail cars, as well as the scientific literature showing all coal trains lose coal at some amount during transit, EPA should presume that each coal train discharges pollutants to each of the stream crossings identified herein. Indeed, there is sufficient information for EPA to maintain a presumption that every coal train transporting uncovered coal cars discharges coal pollutants to every navigable water it crosses or travels adjacent to during transit. Petitioners acknowledge that not every coal train will discharge large quantities of coal to navigable waters, but there is no such requirement under the Clean Water Act. Indeed, there is no *de minimis* exception contained within the CWA or its implementing regulations, and EPA has the authority to regulate intermittent point source discharges.[15] This is because liability under the statute is strict: *any* discharge of *any* pollutant from a point source ("rolling stock") that is not authorized by a NPDES permit violates the law.

d. Unburned Coal Pollutes Surface Waters and Threatens Water Quality Throughout the United States.

Having established the ubiquity of coal and coal dust from uncovered rail cars reaching nearby surface waters, Petitioners now turn to the harm this coal causes to the aquatic environment.

Petitioners submit herewith a paper summarizing the current literature on unburned coal's impacts on water quality. This information is directly relevant to EPA's consideration and resolution of this Petition, because it demonstrates that the ongoing discharges of coal to our Nation's waterways presents a clear danger to water quality and a major obstacle to fulfilling the fundamental goal of the Clean Water Act: eliminating the discharges of pollutants by 1985. A summary of the paper's findings is presented herein, but Petitioners urge EPA scientific staff to review the paper and its annotated bibliography, in detail.

Coal production in the United States can be categorized into four broad categories: anthracite, bituminous, subbituminous, and lignite. Exhibit 3 at 2.1, "Impacts and Ecotoxicology of Unburned Coal Discharged to Aquatic Environments During transport, transfer and terminal operations," Emilie Stump, MSc (hereinafter "Literature Review"). Anthracite coal is mined almost exclusively in Pennsylvania and has the fewest impurities, but represents only 0.4% of coal mined in the United States. *Id*. 2.1. Bituminous coal, on the other hand, represents nearly half (45% as of 2021) of all United States coal production, and has the highest heat and sulfur content, being mostly mined in the Eastern part of the country. *Id*. Subbituminous coal makes up the remaining majority of coal production, representing 46.6% of all production in the United States as of 2021. That coal, which has an intermediate heat content and lower sulfur content, is primarily mined in the northern

[15] "[A]n intermittent polluter—one who [discharges] one month out of every three—is just as much 'in violation' of the Act as a continuous violator." *Gwaltney of Smithfield, Ltd. v. Chesapeake Bay Found.*, 484 U.S. 49, 63 (1987).

Great Plains. Finally, lignite coal, representing 8.2% of 2021 production, has the lowest heat content and intermediate sulfur content, and is mined in Texas and North Dakota. *Id*.

The majority of coal that is produced in the United States for domestic use is transported by rail. *Id*. 2.2.1. The median distance traveled by coal trains is between 700 and 1000 km. *Id*. For coal that is exported, approximately 60% travels by rail to transshipment facilities located in the mid-Atlantic cities of Norfolk, VA and Baltimore, MD. *Id*. 2.2. 85.1 million short tons of coal was exported from the United States overseas, of which 40.1 million short tons (47.2%) of was marketed as thermal coal, and 45.0 million short tons (52.8%) was high-grade bituminous coal marketed as metallurgical coal.

In sum, most coal production in the United States can be categorized as bituminous and subbituminous coal. Regardless of whether that coal is destined for domestic or foreign use, however, the vast majority is transported by rail in open-top railcars.

Coal discharges from open-top railcars release both conventional pollutants, such as Total Suspended Solids, as well as Toxic Pollutants such as EPA's 16 Polycyclic Aromatic Hydrocarbons and trace metals. Unburned coal also contains Emerging Pollutants identified by EPA, such as Polar Aromatic Compounds. *Id*.

Unburned coal is widely discharged to aquatic systems on large spatial and temporal scales. Deposition rates vary, but in every academic study Petitioners reviewed, there were no instances where scientists did *not* measure coal being lost from the specific infrastructure being examined, whether that be railcar, or export facility, or other coal-related infrastructure. *Id.* Table I. Once in water, coal is transported substantial distances. For instance, a study in the Frasier River Delta in British Columbia, Canada found that 1-2% of background sediment samples contained coal, with the closest source being a coal export shipping terminal located some 1.5 km away. *Id*. at 3.3. The highest concentrations of coal and coal particles in environmental media will be found in closest proximity to the likely source of that coal, such as the rail lines on which uncovered coal cars are transported. *Id*. For instance,

> Coal particles are found in soils and sediments near coal freight rail lines, junctions, and railyards. Soil samples collected in 2007 at several sites located within 500 m of a Norfolk Southern rail line delivering coal to a large transshipment facility in Norfolk, VA—all of which were located outside of the facility's fence line—were comprised of 7.42–19.9% particulate coal, with the highest concentrations recorded within 50m of the shipping terminal rail junction (Bounds and Johannesson 2007).

Id. at 3.4.

Once coal is discharged into an aquatic environment, it introduces pollutants known by EPA to degrade water quality and harm aquatic life. For EPA Conventional Pollutants, coal discharges add particulates that increase TSS. "Coal released to the environment typically ranges in size from fine particulates (< 2.5 μm) to large particles exceeding 500 μm

in diameter (chunks). These releases cause physical impacts that are shared with other types of suspended and deposited sediments—abrasion, particle adherence, smothering, increased turbidity, and alteration of sediment characteristics (e.g., grain size distribution, grain texture) (Morrisey and Ahrens 2005)." *Id*. at 4.1. For aquatic plant life, fine coal particulates adhere to and coat the leaves of seagrasses, which leads to reduce gas exchange, photosynthesis, and growth. For gilled animals, such as fish and invertebrates, coal particles become lodged in the protective mucus and between gill lamellae, causing gill damage and higher ventilation frequency. *Id*.

Elevated TSS also results in physical changes to surface waters, such as increased turbidity and an altering of the quality and quantity of light reaching underwater surfaces which, in turn, reduces and limits photosynthesis and the feeding efficiency of visual predators. Coal particles also alter the physical characteristics of the waterbody itself by replacing natural features with unstable coal particles. For instance, "[c]logging of interstitial spaces between gravel by fine sediments can reduce the flow of oxygenated water within gravel beds, leading to declines in populations of fishes such salmon, trout, and small demersal species that rely on well-oxygenated gravels to successfully spawn and develop (Cederholm and Ernest 1979). Localized smothering of bottom surfaces by coal particles can result anoxia, a condition resulting from an oxygen reduction; Johnson and Bustin (2006) estimated that the area within 300m of a coastal coal transshipment facility was likely affected by sediment anoxia." *Id*. at 4.1.

Unburned coal discharged to surface waters also introduces pollutants recognized as toxic by EPA. 40 C.F.R. § 401.15 (CWA toxic pollutant list). Unburned coal contains Polycyclic Aromatic Hydrocarbons (PAHs), Trace Metals, Phenols, and Benzenes. "The best available data currently suggests that, for fine estuarine sediments, initial screening-level protective benchmarks for CWA Toxic Pollutants (i.e., the coal-derived analytes selenium and LMW PAHs) are likely to be exceeded when the % contribution of coal by mass is between 2-10% (Buchman 2008; Hemmera Envirochem Inc. 2014)." Literature Review at 4.2.

For PAHs, EPA looks to 16 specific compounds as having particular impacts on water quality: naphthalene, acenaphthylene, acenaphthene, fluorene, phenanthrene, anthracene, fluoranthene, pyrene, benz[a]anthracene, chrysene, benzo[b]fluoranthene, benzo[k]fluoranthene, benzo[a]pyrene, ideno[1,2,3-c, d]pyrene, benzo[g,h,i]perylene, dibenz[a,h]anthracene. 40 C.F.R. § 401.15. Each compound has been designated by EPA as a priority pollutant due to their carcinogenicity, mutagenicity, dioxin-like activity, and environmental persistence. "PAHs are hydrophobic molecules; they are associated with suspended particulate matter in water and readily adsorb to particles such as silts, black carbons, organic matter and microplastics (Burgess et al. 2003, Yang et al. 2008, Honda and Suzuki 2020). Sediments serve as major PAH sinks, but can also act as secondary sources contamination in aquatic systems (Hylland 2006, Collier et al. 2013). Concentrations of PAHs in the aquatic environment are typically highest in sediments, intermediate in biota, and lowest in the water column (Neff 1980, Maryland Department of Natural Resources 1986)." Literature Review at 4.2.1.

In aquatic organisms, PAHs accumulate in fatty organs and tissue. Biological effects associated with PAHs in the aquatic environment include behavioral changes, physiological changes including changes in gene expression, endocrine disruption, neoplasms, reduced growth, cancers, reproductive toxicity, disrupted embryonic development, transgenerational effects, decreased benthic invertebrate abundance and changes in community structure. *Id.*

Soils, sediments, and biota near coal rail lines, areas impacted by coal train derailments, near coal transshipment facilities, and coal stockpiles are subject to chronic coal discharges that introduce PAHs to the environment. *Id.* 4.2.1.3. The presence of unburned coal particles in soils or sediments, including coal fines, correlates to elevated PAH levels in surrounding environmental media. *Id.* (citing Kögel-Knabner 2000; Pies et al. 2007; Stout and Emsbo-Mattingly 2008; Laumann et al. 2011; Hemmera Envirochem Inc. 2014; Hindersmann and Achten 2018; Hagmann et al. 2020; and Trowell et al. 2020).

Notably, PAH "railroad effects"—increasing PAH concentrations with increasing proximity to current and former coal freight rail lines—have been reported by numerous researchers domestically and abroad. As the Literature Review details:

> Among the most compelling case studies is the series of environmental investigations examining contamination at a former Central Railroad of New Jersey coal rail yard and shipping terminal. A primary concern of researchers is the environmental risk caused by unburned coal's constituent PAHs (Hagmann et al. 2020). Coal particles ranging in size from fines to large chunks were widely distributed in the soil, comprising up to 30% of the soil by volume, and were visible to the naked eye. All sites within the study area were contaminated with coal-derived aromatic compounds including PAHs, and were variably phytotoxic and dysfunctional; among the sites was what has been described as an "industrial barren", void of any vegetation (Kozlov and Zvereva 2007). The profile of aromatic hydrocarbons in the soil included parent and alkyl-naphthalenes, phenanthrenes, fluoranthene, fluorenes, pyrenes, and chrysenes (Hagmann et al. 2019; Hagmann et al. 2020).

Id. at 4.2.1.3. Numerous other case studies demonstrating the connection between proximity to coal rail lines and pollution of nearby surface waters and other environmental media by coal pollutants are described in the Literature Review. One of those studies took place along the Columbia River Gorge, one of the locations where Petitioners have spent time investigating coal discharges from coal trains hauling coal out of the Powder River Basin to export facilities. As the literature review details:

> Hapke et al. (2019) sampled sediments at subsites close to and far away from a heavy freight rail line that carries Powder River Basin coal through the Columbia River Gorge, Washington, and reported significantly higher concentrations of ∑PAHs, summed HMW PAHs and fluoranthene at sites closer to the rail line…Benzo[a]pyrene and benzo[b]fluoranthene were detected in sediment samples in wetlands adjacent to the rail coal rail corridor at an otherwise relatively isolated site with few alternative sources of PAHs

> (Hapke et al. 2019). While these observed effects were not exclusively attributed to discharges of unburned coal, the authors strongly suggest that Powder River Basin coal transported through the region is a source of PAHs and recommend additional analysis.

And in Norfolk, VA, home to Norfolk Southern's Lambert's Point coal export facility, the Elizabeth River has "among the highest levels of sediment PAHs ever reported in scientific literature. Walker et al. (2004) reported average values in Elizabeth River sediments ranging between 500 and 1700 µg/kg. The cumulative effect of small spills and leaching of coal and/or coal-derived contaminants to surface waters from shoreside coal shipping terminals, coal stockpiles and/or contaminated groundwater was identified as the most probable source of elevated petrogenic PAHs in mainstem Elizabeth River sediments)[.]" *Id.*

Unburned coal also contains trace metals that EPA recognizes as environmental contaminants. Primarily, those metals are arsenic, cadmium, chromium, mercury, and selenium. "There is strong concurrence among researchers that Se [selenium] and As [arsenic], which are considerably enriched in coal relative to crustal background and have an affinity for sulfates, sulfides, and organic matter, warrant increased scrutiny in environmental assessment and monitoring of the environmental impacts at all stages of the coal lifecycle (Gluskoter et al. 1977; Finkelman 1999; Caballero-Gallardo et al. 2018)." *Id.* at 4.2.2.1. The following table provides measured values of trace metals in US coal:

Table 3: Arithmetic and Geometric Means for EPA CWA Trace Metals in US Coal (ppm)

	Arithmetic		Geometric			
Trace Metal	Mean	S.D.	Mean	S.D.	Max.	Num.
Antimony (Sb)	1.2	1.6	.61	3.6	35	7473
Arsenic (As)	24	60	6.5	5.5	2200	7676
Beryllium (Be)	2.2	4.1	1.3	3.5	330	7484
Cadmium (Cd)	.47	4.6	.02	18	170	6150
Chromium (Cr)	15	15	10	2.7	250	7847
Copper (Cu)	16	15	12	2.1	280	7911
Lead (Pb)	11	37	5	3.7	1900	7469
Mercury (Hg)	.17	.24	.10	3.1	10	7649
Nickel (Ni)	14	15	9	2.8	340	7900
Selenium (Se)	2.8	3	1.8	3.1	150	7563
Silver (Ag)	(<0.1)	.35	.01	9.1	19	5038
Thallium (TI)	1.2	3.4	.00004	205	52	1149
Zinc (Zn)	53	440	13	3.4	19000	7908

Table modified from Table 1 in Finkelman (1999) All values are in ppm; Data are exclusively from the U.S. Geological Survey (USGS); S.D. = standard deviation; Max. = maximum; Num. = number of samples).

Id.

The trace metals found in coal are made available to natural systems in both dissolved and particulate form. "Metals in solution—in water column and/or in sediment porewater—can diffuse across cellular membranes in the respiratory and/or digestive systems. Metals in particulate form, including those bound in particulate coal, can be ingested by organisms and bioaccumulation can occur despite otherwise being undetectable as dissolved species in the water." *Id*. at 4.2.2.2.

Subsection 5 of the Literature Review details the ecotoxicological impacts of coal contamination of aquatic waters at the sub-organismal, organismal, population and community/ecosystem levels. At the sub-organismal level, "[e]xposure to particulate coal, coal extracts, and/or coal distillates elicits changes in gene regulation and gene expression in genes conserved among groups of aquatic organisms. Bioassays and whole-organism laboratory studies have explicitly linked exposure to coal—especially to organic compounds including PACs, EPA 16 PAHs, alkylated derivatives of the 16 EPA PAHs, and alkylated phenols—to changes in the expression of genes in CYP superfamily that encode for proteins linked to cellular metabolism in most organisms (Werck-Reichhart and Feyereisen 2000; Collier et al. 2013)."

Organic compounds in coal can also induce mutagenic activity. For instance:

> RNA transcriptome analysis revealed that exposure to an aqueous extract of bituminous coal dust—prepared with 50 mg bituminous coal dust (<38 μm) in 300 mg milli-Q water for 36 hours—caused concentration-dependent alterations in gene expression and molecular pathways in embryonic Danio rerio; 77, 61 and 1376 genes were altered in the 1, 10 and 100 ppm treatment groups, respectively, of which 19 genes were altered in all three treatment groups. These 19 genes were associated with hematological system development, connective tissue and embryonic development including the quantity and development of T and B lymphocytes, differentiation of blood and bone cells, proliferation of fibroblasts and smooth muscle cells and formation and differentiation of osteoclasts, associated with immunological and inflammatory disease, arthritis, cancer, chronic inflammatory disorders, inflammation of the liver, hyperplasia and the development of tumors (Caballero-Gallardo et al. 2018).

Literature Review at 5.2.

At the organism-level, lethal and sub-lethal effects, including morphological and physiological abnormalities, neoplasms/carcinomas, growth impairment, reproductive impairment, and mortality have been observed in a range of taxa following laboratory or field exposure to coal and/or coal extracts. Current laboratory studies, as described in the Literature Review, confirm that "exposure to unburned coal or substances extracted from unburned coal, which may or may not be bioavailable depending on intrinsic and extrinsic

environmental factors, can lead to sub-lethal and lethal effects on organisms." One study, for example, examined interactions between coal export terminals and invertebrates:

> In laboratory experiments examining respiration and respiratory organs of the Dungeness Crab (*Cancer magister*) on mixed coal dust and control substrates, both Pearce and McBride (1977) and Hillaby (1981) observed fine coal dust adhering to and coating the mucous membranes of the gills and large particles embedded in the spaces between gill lamellae. Hillaby (1981) further report damage to the lamellae of smaller crabs exposed to coal dust and measurable impairments in respiration; Respiratory activity, as measured in beats per minute (BPM) inside the branchial chamber, was lower in crabs maintained on the coal dust substrate. In their interpretation of the results, the authors posit the indirect effects such as the active avoidance of suspended coal dust by crabs and/or impacts to habitat could lead to localized declines of commercially-fished crab and lobster in areas where colliery wastes are dumped and around coal terminals (Pearce and McBride 1977).

Id. Similarly, laboratory contact assays using the nematode *Caenorhabditis elagans* on finely-ground coal (< 200 μm) substrates found severe inhibition of reproduction attributed to exposure to coal particles or particle-bound inorganic contaminants (metals) through the digestive pathway. *Id*.

For vertebrate species, "investigations have demonstrated that fishes, as gilled animals, experience sub-lethal to lethal effects arising from the physical impacts of discharged coal (particle adhesion and abrasion affecting the gills) and from exposure to toxic substances in coal." As the Literature Review explains:

> Exposure to suspended coal particles can produce sub-lethal and lethal effects including coughing, heavy mucous secretion or reduced mucus coverage, adhesion of particles to the gills resulting in possible toxic exposures, gill damage, ingestion of particles leading to possible toxic exposures, reduced growth, and mortality in fishes; the lowest reported concentration at which sub-lethal effects with population-level implications were detected is 9 μm /L (particle size < 63 μm) (Berry et al. 2021) and the severity of impacts increases with exposure duration (Newcombe and Macdonald 1991). Fish gills are vulnerable to disruption and damage from exposure to fine suspended unburned coal particles resulting from particle adhesion and/or abrasion that lead to sub-lethal physiological stress, reduced growth, and/or mortality (Pautzke 1938; Pearce and McBride 1977; Hillaby 1981; Henley et al. 2015; Berry et al. 2021). Furthermore, the survival of eggs of some fishes (i.e., Coho Salmon) is significantly inversely correlated with exposure to fine sediments (Cederholm and Ernest 1979).

Id. at 5.3.3. Importantly, the early life history stages of fishes are especially vulnerable to chemical exposures related to discharges of unburned coal in the aquatic environment. For example, the PAHs contained within unburned coal are toxic to the early life history of Zebrafish, as has been demonstrated by multiple studies detailed in the Literature Review, Section 5.3.3.

Unburned coal discharged into the aquatic environment also causes population-level effects. Population-level impacts change local community structure through loss of species and/or abundances of species present. These impacts include "abundances of individuals and/or the age structure, reproductive rate, or recruitment rate of the population (Jones et al. 2020). Exposure to coal in the environment can result in developmental toxicity and increased mortality of early-life stages of aquatic organisms. Affected parameters include hatch rate (Carlson 1979), reproductive inhibition in a nematode (Meyer et al. 2013), oocytes re-absorption in female freshwater mussels (Henley et al. 2015), reduced sperm count in exposed fish (Cochran 1987), delayed maturation (Carlson 1979). Many of these expressions are consistent with the effects of exposure to PAHs (Collier et al. 2013)." *Id*. at 5.4.

Community-level impacts are also discussed in the Literature Review. Community-level effects are those that change the numbers of species present and the abundances of those remaining. One study used "laboratory mesocosms that isolate the effect of coal dust in sediment from other potential mining-related impacts, researchers linked exposure to particulate coal (≤ 425 μm) in sediments to physiological and reproductive impairments that, in wild populations, would lead to reduced recruitment and population declines (Henley et al. 2015). In a similar study, subject matter experts concluded that sub-lethal effects of exposure to coal particles or particle-derived substances (PAHs trace metals) from fugitive coal dust in sediments caused sub-lethal effects that resulted in the decline of the Western Cutthroat Trout (*Oncorhynchus clarkii lewisi*) in the Fording River, British Columbia (Evaluation of Cause Team 2021)." Literature Review at 5.4.

The Literature Review reports that sub-lethal effects with population-level implications can be observed in fish species at a coal concentration of 11^{-9} mg coal/L (< 63 μm) over 14 and 28 days, respectively. *Id*. PAHs and their derivatives present the greatest concern, along with selenium and arsenic.

The Literature Review concludes that unburned coal is discharged to the environment during all phases of the coal life cycle, including transportation and terminal processes. Unburned coal presents both acute and chronic concerns and leads to exceedances of protective soil and sediment benchmarks. Physically, discharged coal and coal particles causes abrasion, particle adherence, and smothering; finer particles become deeply embedded in the gills of fishes and invertebrates in a phenomenon that appears to be analogous to their behavior in the human lung. Unburned coal also introduces toxic chemicals such as PAHs to the environment, further threatening aquatic organisms.

III. LEGAL BACKGROUND

Above, Petitioners present evidence showing (1) coal train operators admit that uncovered coal cars lose coal in transit, and that coal will be lost from the tops of uncovered rail cars by the physical principle of Aeolian erosion; (2) whenever Petitioners and their volunteers look for coal in waterways with proximity to rail lines that transport coal, they find it; (3) publicly available GIS data about coal train routes reveals that each train crosses potentially hundreds of navigable waterways, resulting in huge amounts of coal pollutant discharges that are presently unregulated under the Clean Water Act; and (4) coal and coal particulates contain PAHs, trace metals, and other contaminants that degrade water quality and harm aquatic life and ecosystems.

In this section, Petitioners describe (**a**) the citizen's right to petition EPA, and the Agency's duty to respond; (**b**) EPA's duty to regulate coal discharges from rolling stock under the Clean Water Act; and (**c**) EPA's regulatory authority to issue a nationwide NPDES permit for uncovered rail cars transporting coal.

a. Citizens' Have a Right to Petition EPA, and EPA has a Duty to Respond.

The citizen right to petition the government originates in the First Amendment,[16] and is codified and applied to federal agency regulations through the APA's requirement that "[e]ach agency shall give an interested person the right to petition for the issuance, amendment, or repeal of a rule."[17] The APA also imposes an affirmative obligation on EPA to timely respond to this petition, by requiring that "[w]ith due regard for the convenience and necessity of the parties or their representatives and within a reasonable time, each agency shall proceed to conclude a matter presented to it."[18] In the event EPA seeks to deny the petition in whole or in part, it must provide "[p]rompt notice" to the petitioners.[19]

The APA further grants a right of judicial review to "[a] person suffering legal wrong because of agency action, or adversely affected or aggrieved by agency action,"[20] which is defined to include the "failure to act."[21] In the event EPA fails to timely respond or improperly denies the petition in whole or part, courts "shall compel agency action unlawfully withheld or unreasonably delayed,"[22] and "hold unlawful and set aside agency action, findings, and conclusions found to be arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law."[23]

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[16] U.S. Const. amend. I ("Congress shall make no law . . . abridging . . . the right of the people . . . to petition the Government for a redress of grievances").
[17] 5 U.S.C. § 553(e).
[18] *Id*. § 555(b).
[19] *Id.* § 555(e).
[20] *Id*. § 702.
[21] *Id*. § 551(13).
[22] *Id*. § 706(1).
[23] *Id*. § 706(2)(A).

Petitioners respectfully request that EPA treat this Petition for Rulemaking with urgency, begin frequent communication with representatives of the Petitioners about EPA's steps in responding to this Petition, and consult with Petitioners prior to issuing any final determination on this Petition.

b. EPA Has a Duty to Regulate Discharges from Rolling Stock under the Clean Water Act.

The CWA's objective is to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters" by eliminating discharges of pollutants into navigable waters.[24] Under the CWA, the "discharge of any pollutant by any person shall be unlawful" unless that discharge is first authorized pursuant to the National Pollutant Discharge Elimination System (NPDES) permitting program.[25] The CWA defines "discharge of a pollutant" as "(A) any addition of any pollutant to navigable waters from any point source, (B) any addition of any pollutant to waters of the contiguous zone or the ocean from any point source other than a vessel or other floating craft."[26] The term "pollutant" is broadly defined and includes "industrial…waste discharged into water."[27]

Important here, a "point source" is defined as a "discernible, confined and discrete conveyance," and Congress deliberately chose to include within the definition of point source "rolling stock." "Rolling stock" as a term is commonly understood to mean locomotives, carriages, wagons, or other vehicles used on a railroad, including both powered and unpowered vehicles such as freight cars hauling coal.[28] Thus, when Congress passed the CWA, it demonstrated a clear intent to control and continuously reduce discharges of pollution from all "rolling stock," which necessarily includes railcars carrying coal, through the NPDES program. Despite this Congressional directive that "rolling stock" be considered a point source from which unlawful discharges may occur, Petitioners are aware of no current NPDES permit that would address coal discharges from uncovered railcars during transit.

The CWA requires EPA to meet certain criteria when establishing the permit requirements for a discharging industry. EPA imposes NPDES permit requirements through the development of national Effluent Limitation Guidelines (ELGs) for industrial source categories. ELGs establish the pollution control levels that industries and facilities must achieve for various types of pollutants and must be based on several technology- based standards for different categories of pollutants.

Existing facilities are subject to: best available technology economically achievable (BAT) for priority and nonconventional pollutants, which include nitrogen, phosphorus,

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[24] 33 U.S.C. § 1251(a).
[25] 33 U.S.C. § 1311(a).
[26] 33 U.S.C. § 1362(12).
[27] 33 U.S.C. § 1362(14).
[28] *See, e.g.,* <https://www.epa.gov/epcra/what-items-are-covered-term-rolling-stock> (last visited March 29, 2023) (explaining EPA's understanding and interpretation of the term "rolling stock" under EPCRA to mean "locomotives, freight cars, flat cars, and other vehicles that use steel wheels on railroad tracks."); Oxford Languages, defining "rolling stock" as "locomotives, carriages, wages, or other vehicles used on a railroad."

metals, and pharmaceuticals; best conventional pollutant control technology (BCT) for conventional pollutants, which include fecal coliform, biochemical oxygen demand, pH, oil and grease, and total suspended solids; and best practicable control technology currently available (BPT) for all pollutants. New sources are subject to more stringent new source performance standards (NSPS) for all pollutants, based on the best available demonstrated control technology (BADT).[29]

EPA must consider various criteria when deriving each standard. BAT must take into account, *inter alia*, facility age, cost of achieving pollution reduction, and non-water quality environmental impacts. BCT must also take these factors into account, but in addition to the requirements that technologies be both available and economically achievable, EPA must consider the reasonableness of the relationship between a technology's cost and the pollution reductions achieved. New source performance standards must "reflect[] the greatest degree of effluent reduction which the Administrator determines to be achievable…including, where practicable, a standard permitting no discharge of pollutants."[30]

Such technology-based effluent limitations (TBELs) afford the *minimum* level of water quality protection required by the CWA,[31] and permits must establish such limits for all pollutants present in a discharge.[32] "Once EPA establishes effluent limitation guidelines, a permit writer is responsible for translating the limitations and other requirements of the effluent limitation into TBELs and other conditions appropriate for inclusion in an NPDES permit."[33] States are free to impose more stringent levels of pollution control, but the ELGs set forth the minimum requirements that must be achieved. To date, EPA has not established ELGs for discharges from rail cars, as the STB notes in its decision. Ex. 1 at 4.

As described in the Factual Background section, *supra*, there is broad, nationwide evidence that trains transporting coal in open-top rail cars discharge coal to navigable waters that these "rolling stock" travel over or adjacent to during their transit. These coal trains all share similar characteristics: they haul coal in open-top rail cars throughout the United States, and through operation of Aeolian or wind erosion, are constantly discharging some amount of coal throughout their journey. When these coal trains pass over or adjacent to navigable waters, they also discharge coal into those waters. Coal is, undoubtedly, a

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[29] *Id*. §§ 1311(b)(2)(A), 1314(b)(4)(A), 1314(b)(1)(A), 1316.
[30] 33 U.S.C. § 1316(a)(1).
[31] 40 C.F.R. § 122.44 ("[E]ach NPDES permit shall include conditions meeting the following requirements . . . Technology-based effluent limitations and standards based on: effluent limitations and standards promulgated under section 301 of the CWA, or new source performance standards promulgated under section 306 of CWA, on [sic] case-by-case effluent limitations determined under section 402(a)(1) of CWA, or a combination of the three, in accordance with § 125.3 of this chapter"); 40 C.F.R. § 125.3 ("Technology-based treatment requirements under section 301(b) of the Act represent the minimum level of control that must be imposed in a permit issued under section 402 of the Act").
[32] 40 C.F.R. § 125.3(a)(2), requiring permits to contain technology-based limits for "conventional pollutants," "all toxic pollutants," and "all pollutants which are neither toxic nor conventional pollutants."
[33] EPA, NPDES Permit Writers' Manual at 5-22 (Sept. 2010) http://www.epa.gov/sites/production/files/2015-0/documents/pwn_2010.pdf/

pollutant subject to regulation under the Act, and as Petitioners describe herein, unburned coal poses substantial threats to water quality and aquatic life.

c. EPA Maintains Regulatory Authority to Promulgate a Nationwide NPDES General Permit for Coal Trains.

Based on the information herein, EPA also the authority and duty to issue a Nationwide General NPDES permit for rolling stock transporting coal throughout the United States. The NPDES program is the primary pollution control mechanism available to EPA to regulate point source discharges. EPA may "issue a permit for the discharge of any pollutant, or combination of pollutants, notwithstanding section 1311(a)" of the CWA.[34] There are two types of NPDES permits: general permits and individual permits. A general permit, such as the one Petitioners request here, covers multiple facilities or operations within a specific category for a specific period of time (5 years). General permits are issued pursuant to 40 C.F.R. § 122.28 to cover categories of point sources having common elements, such as facilities that involve the same or substantially similar types of operations, that discharge the same types of waste. Individual permits, on the other hand, are written for unique facilities that do not share common characteristics.

Petitioners understand that neither EPA nor any delegated state has yet to impose NPDES requirements on any railcar transporting coal. Thus, while EPA typically does not issue General NPDES permits for discharges that are otherwise subject to regulation by states that have been delegated authority to implement the CWA, here no state has exercised that authority.[35] Instead, the STB has determined that states with delegated CWA authority are *unable* to lawfully issue NPDES permits for discharges of coal from rolling stock, because Congress revoked that authority when it passed the later-enacted ICCTA. According to the STB, ICCTA's grant of exclusive jurisdiction to the STB in 1995 effectively revoked, explicitly or implicitly, the ability of delegated states to impose NPDES requirements on statutorily-defined point sources – rolling stock – within their jurisdiction. The STB reasoned that allowing individual state permit writers to impose BPJ and water quality based effluent limitations beyond what EPA may issue means rail cars would be subject to a "patchwork" of regulation, which violates ICCTA's grant of exclusive jurisdiction to the STB over the regulation of rail cars in the United States. Ex. 1 at 11. Specifically, the STB reasoned that:

> In short, variability of permit conditions is an essential feature built into the structure of the NPDES permitting system to allow states to tailor their regulations to their policy goals, the specific characteristics of their water, and the discharges at issue. For these reasons, application of the NPDES permitting program, as currently administered, to discharges incidental to the operation of rail cars in transit would likely result in a patchwork of differing regulations.

[34] *Id*. § 1342.
[35] 33 U.S.C. 1342(c).

Id. Thus, according to the STB, ICCTA affirmatively revoked delegated States' jurisdiction to regulate point source discharges from rolling stock under the CWA. The Board specifically stated that it "would likely find that the NPDES permitting program as currently administered is incompatible with the purpose of § 10501(b). In that context, under the repeal by implication analysis, the later-enacted statute, § 10501(b), would be given effect."

The STB also reasoned that ICCTA was specifically targeted at rail transportation, whereas the CWA is a statute of broader implication, touching on all varieties of surface water pollution in the United States. Thus, the STB concluded that "rail cars in transit are inherently instrumentalities of interstate commerce; as such, subjecting them to differing regulatory requirements as they pass from one state to the next is likely to be incompatible with the free flow of interstate commerce that Congress envisioned when enacting § 10501(b)."

The STB decision addressed only the authority of individual states to issue NPDES permits for rail cars, and in no way questioned or constrained the ability of EPA to issue a nationwide general NPDES permit. Indeed, the STB explicitly stated that a uniform nationwide permit could be harmonized with ICCTA because it would not create such a patchwork. EPA has authority to issue such a nationwide general NPDES permit. Indeed, as discussed below, EPA currently implements a nationwide general permit for vessel discharges.

Unless EPA acts to fill the gap in the states' authority left by the STB decision, an entire class of statutorily-defined point source discharges will be left unregulated. Delegated states lack the authority, according to the STB, to issue NPDES permits for rolling stock discharges. This leaves only the EPA as the suitable environmental regulator with the power and the duty to regulate the discharges.

IV. EPA SHOULD IMMEDIATELY BEGIN RULEMAKING TO ESTABLISH A UNIFORM NATIONWIDE GENERAL NPDES PERMIT FOR DISCHARGES OF COAL FROM UNCOVERED ROLLING STOCK.

Petitioners request that EPA begin rulemaking to establish a uniform, nationwide general NPDES permit for discharges of coal from uncovered rolling stock. EPA should engage in such rulemaking and ultimately issue a nationwide general permit because there is sufficient information to establish a presumption that all uncovered railcars transporting coal discharge to the navigable waters they cross or travel adjacent to during transit. A general permit is warranted due to the common elements shared by all coal trains, namely that they involve the same or substantially similar types of operations and discharge the same types of waste.

a. EPA Should Establish a Presumption that All Coal Trains Travelling Across or Adjacent to Waters of the United States Discharge Coal Pollutants to Those Waters.

Under well-settled principles of administrative law, agencies have the power to establish evidentiary presumptions.[36] EPA has recognized this authority and applied it to other industries in the past.[37] So long as there is "some rational connection between the fact proved and the ultimate fact presumed, and [] the inference of one fact from proof of another [is] not so unreasonable as to be a purely arbitrary mandate," courts will deem such an evidentiary presumption valid.[38] Regulatory presumptions, *i.e.*, evidentiary presumptions established through rulemaking, are therefore entitled to substantial deference.[39] It follows that, by establishing an evidentiary presumption that all coal trains traveling across or adjacent to Waters of the United States actually discharge, EPA can validly either treat them as discharging point sources or require them to produce evidentiary evidence that they do not discharge, and therefore should not be subject to the NPDES program.[40] Furthermore, caselaw strongly supports the use of this kind of legal device to increase administrative efficiency and as a solution to the paucity of reported data pertaining to individual facilities.[41]

Petitioners provide voluminous evidence herein that all coal trains lose coal throughout their journey, and that all coal trains pass over or adjacent to jurisdictional waters. But EPA need not take Petitioners' word for it: the industry itself acknowledges that their coal cars lose coal while traveling – so much so that industry requires a tariff

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[36] *See e.g., NLRB v. Baptist Hospital*, 442 U.S. 773, 787 (1979); *Nat'l Mining Ass'n v. U.S. Dept. of Interior*, 177 F.3d 1, 6 (D.C. Cir. 1999); *U.S. Steel Corp. v. Astrue*, 495 F.3d 1272, 1284 (11th Cir. 2007); *Cole v. USDA*, 33 F.3d 1263, 1267 (11th Cir. 1994); *Holland Livestock Ranch v. U.S.*, 714 F.2d 90, 92 (9th Cir. 1983); *Chem. Mfrs. Ass'n v. Dep't of Transp.*, 105 F.3d 702, 705 (D.C. Cir. 1997).

[37] 2001 Proposed CAFO Rule, 66 Fed. Reg. at 3040.

[38] *Mobile, Jackson & Kansas City R. Co. v. Turnipseed*, 219 U.S. 35, 43 (1910); *See also NLRB v. Baptist Hospital*, 442 U.S. at 787; *Atchison, T. & S. F. Ry. Co. v. ICC*, 580 F.2d 623, 629 (D.C. Cir. 1978); *Nat'l Mining Ass'n v. Babbitt*, 172 F.3d at 912. That the fact presumed does not always and inevitably follow from the predicate fact has no bearing on the validity of an evidentiary presumption. *See Cole v. USDA*, 33 F.3d at 1270 ("The mere statement that the fact presumed does not *always follow necessarily* from the predicate fact obviously leaves ample room for some lesser, though still rational, connection between the two," thus the mere possibility of circumstances in which the relationship might not hold true was insufficient to invalidate a regulatory presumption).

[39] *NLRB v. Baptist Hospital*, 442 U.S. at 796 (Justice Brennan concurring); *NLRB v. Los Angeles New Hospital*, 640 F.2d 1017, 1020 (9th Cir. 1981); *N.Y. Foreign Freight Forwarders & Brokers Ass'n v. Fed. Mar. Comm'n*, 337 F.2d 289, 295 (2d Cir. 1964).

[40] The effect of an evidentiary presumption is to shift the burden of proof, but not the burden of persuasion, to the party against whom the presumption is invoked. *See* Fed. R. Evid. 301 ("In a civil case, unless a federal statute or those rules provide otherwise, the party against whom a presumption is directed has the burden of producing evidence to rebut the presumption. But this rule does not shift the burden of persuasion, which remains on the party who had it originally.").

[41] *Chem. Mfrs. Ass'n v. Dep't of Transp.*, 105 F.3d at 706 (upholding an evidentiary presumption, established by rule, as an exercise of the agency's "reasoned judgment," and a "sensible, timesaving device"); *Nat'l Mining Ass'n v. Babbitt*, 172 F.3d at 912 (finding an evidentiary presumption is permissible "when proof of one fact renders the existence of another fact so probable that it is sensible and timesaving to assume the truth [of the inferred fact] . . . until the adversary disproves it").

mandating the application of surfactants to reduce, but not eliminate, coal losses during transit for cars originating in the Powder River Basin. Against this factual backdrop, EPA has ample justification to establish a presumption that all trains transporting uncovered railcars carrying coal discharge coal pollutants to jurisdictional waters that they cross or travel adjacent to during transit.

b. Because All Coal Trains Discharge Coal Pollutants, EPA Must Undergo Rulemaking to Establish a General NPDES Permit for these Point Source Discharges.

Proceeding from the presumption that all uncovered coal cars discharge coal while in transit, including into jurisdictional waters, EPA has a mandatory duty under the Clean Water Act to regulate these point source discharges. Under the Act, the discharge of pollutants from point sources is unlawful absent a NPDES permit; Section 301 of the Act represents an absolute ban on discharges absent compliance with such a permit. The NPDES permitting program and the Clean Water Act broadly are the "principal legislative source of EPA's authority—and responsibility—to abate and control water pollution."[42] This means that, once EPA identifies that point source discharges are occurring, it shall "either [] issue a permit for the discharge of the pollutant or [] enforce the total proscription on discharge[s]."[43] EPA may not merely "leave pollutants subject to the requirements of the statute unregulated."[44]

Petitioners have established the elements of a point source discharge from coal trains in transit. Coal is plainly a "pollutant" under the Act. Uncovered railcars are "rolling stock," a statutorily-defined point source. These point sources "discharge" coal by adding coal pollutants to waters of the United States – the streams, rivers, and other navigable waters over which coal trains pass or travel adjacent to during transit. When a piece of coal is lost from the top of an uncovered coal car and released into such waters, it is a point source discharge under the Act that EPA must either regulate through the NPDES program or through enforcement of the Act's discharge prohibition. The Agency may not simply do nothing.

Because uncovered coal cars and the trains that transport them involve the same or substantially similar types of operations, discharge the same types of waste, and require the same effluent limitations and operating conditions, a general NPDES permit for these discharges is warranted under 40 C.F.R. § 122.28.

[42] *Waterkeeper All., Inc.*, 399 F.3d at 491.
[43] *L.A. Waterkeeper v. Pruitt*, 320 F. Supp. 3d 1115, 1122 (C.D. Cal. 2018); *see Nat. Res. Def. Council v. Costle*, 568 F.2d 1369, 1375 (D.C. Cir. 1977); *see also Nw. Env't Advocs. v. EPA*, 537 F.3d 1006, 1021-22 (9th Cir. 2008).
[44] *L.A. Waterkeeper*, 320 F. Supp. 3d at 1122.

c. EPA Should Issue a Nationwide General Permit in Light of the STB's Conclusion that ICCTA Revoked Delegated States' Authority to Issue NPDES Permits for Discharges from Rolling Stock.

Petitioners are aware of only one nationwide general NPDES permit issued under 33 U.S.C. § 1342: the Final 2013 Vessel General Permit, authorizing the discharge of pollutants incidental to the normal operation of commercial vessels greater than 79 feet in length. According to the Fact Sheet for that Permit, EPA chose to issue a nationwide permit under Section 402 of the Act because such discharges were formerly exempted from regulation under 40 C.F.R. § 122.3. That exemption was subject to litigation in 2003, wherein the U.S. District Court for the Northern District of California vacated the exemption, a decision that was later upheld by the Ninth Circuit.

EPA thereafter issued the 2013 Vessel General Permit on the legal basis that before the vessel exemption was litigated, delegated states with Clean Water Act jurisdiction had no authority to issue NPDES permits for discharges from such vessels. Typically, pursuant to Clean Water Act Section 402(c), EPA may not issue NPDES permits in states that have received delegated authority. EPA reasoned this provision did not apply to the Vessel General Permit because "[d]ischarges formerly excluded under 40 CFR 122.3 are not 'subject to' authorized state programs. The vessel discharges covered by the permit are discharges that were formerly excluded from the NPDES permitting programs under 40 CFR 122.3…Therefore the discharges at issue are not considered a part of any currently authorized state NPDES program."

Here, the STB has concluded that when Congress passed ICCTA, it sought to centralize the regulation of railroads in the United States. As it pertains to NPDES permitting, the Board concluded that ICCTA's exclusive grant of jurisdiction to the Board meant no NPDES permit could be lawfully issued by any delegated state, as such authority was preempted by ICCTA's passage. Specifically, were delegated states allowed to issue their own NPDES permits on interstate rail commerce, the resulting "patchwork" of differing regulations "cannot be harmonized with" ICCTA § 10501(b) and therefore would likely be preempted. Stated differently, according to the STB no state with Clean Water Act authority can issue a NPDES permit for point source discharges from rolling stock. Consequently, when ICCTA was passed in 1995, it revoked through preemption the authority of such delegated states to issue NPDES permits for these discharges. Just like the Vessel General Permit and the exemption formerly at 40 C.F.R. § 122.3, here no state has had authority to issue a NPDES permit for coal discharges from rolling stock since 1995. This means EPA maintains its own authority to issue a nationwide general permit without running afoul of Section 402(c) of the Act, as "those discharges subject to such [state] program[s]" do not include rolling stock discharges of coal. This is especially true because there is no NPDES permit issued by delegated states for the discharges discussed herein.

A nationwide general NPDES permit for coal discharges was sanctioned by the STB as the only means of effectuating the Clean Water Act's prohibition on unpermitted point source discharges. According to the Board, "application of the NPDES permitting program, which allows for disparate and varying state-specific regulatory requirements, is likely to

result in a patchwork of regulations irreconcilable with § 10501's goal of ensuring the free flow of interstate commerce. A nationwide uniform general permit for incidental discharges from rail cars in transit, however – if adhered to by each of the states – would avoid this patchwork problem…To the extent that EPA could issue a nationwide general permit for incidental discharges from rail cars in transit that includes uniform requirements for the states, such a nationwide general permit would not create a patchwork of differing regulations and could therefore potentially be harmonized with § 10501(b)."

Absent some other means of harmonization, Petitioners submit that EPA should take up the STB's charge and issue a nationwide general NPDES permit for discharges of coal pollutants from rolling stock into waters of the United States. This solution would result in the lawful regulation of point source discharges from rolling stock to the Nation's surface waters and fill a regulatory gap.

V. CONCLUSION

There are hundreds of thousands of uncovered coal cars traveling across the United States at any given time. These coal cars travel great distances, crossing and traveling adjacent to an untold number of streams, rivers, and navigable waters that make up the American landscape. The coal industry and the railroad industry readily acknowledge that their coal cars lose coal while undertaking that journey. Some of that coal is lost not to land, but directly to water. Such point source discharges to the Nation's waterways are presently unregulated, adding harmful PAHs, metals, and other coal pollutants to aquatic ecosystems. Petitioners respectfully request that EPA control these unlawful discharges by issuing a Nationwide General NPDES Permit for Discharges of Coal from Uncovered Railcars.

RESPECTFULLY SUBMITTED BY PETITIONERS THIS 26TH DAY OF SEPTEMBER, 2023.

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