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Network for Oil and Gas Accountability and Protection (OH) ~ Neuse Riverkeeper Foundation (NC) ~ New Jersey Chapter of the Sierra Club ~ New Jersey Environmental Federation ~ New Jersey Environmental Lobby ~ New York City Friends of Clearwater ~ NJ Highlands Coalition (NJ) ~ Northjersey Pipeline Walkers (NJ) ~ NY/NJ Baykeeper ~ NYH20 (NY) ~ Occupy the Pipeline ~ Ohio Environmental Council ~ Ohio River Foundation ~ Otsego 2000, Inc. ~ Pamlico - Tar River Foundation (NC) ~ Paradise Gardens and Farm ~ Partnership for Sustainability in Delaware ~ Pascack Sustainability Group ~ Patuxent Riverkeeper (MD) ~ Pennsylvania Alliance for Clean Water and Air ~ Pennsylvanian State Division of Izaak Walton League of America (PA) ~ People's Oil & Gas Collaborative - Ohio ~ Pipeline Safety Coalition ~ Pipeline Safety Coalition ~ Potomac Riverkeeper, Inc. (D.C.) ~ Protecting Our Waters (PA) ~ Quench NJ (Questioning Unsafe Environmental Choices) (NJ) ~ Raritan Headwaters Association (NJ) ~ Raritan RIVERKEEPER ~ Residents of Crumhorn (NY) ~ Riverkeeper, Inc. ~ Riverkeeper, Inc. ~ Rivers Alliance of Connecticut ~ ROUSE (Residents Opposing Unsafe Shale-Gas Extraction) ~ Sane Energy Project (NY) ~ Sassafras River Association (MD) ~ Save The River (NY/Toronto) ~ Severn Riverkeeper ~ Shale Just Coalition ~ Shale Justice Coalition (PA) ~ Shenandoah Riverkeeper ~ Sierra Club (Nat'l) ~ Sierra Club-Connecticut Chapter ~ South Hills Activists Against Dangerous Drilling (PA) ~ Stewards of the Lower Susquehanna, Inc. (PA) ~ STP - Stop the [Constitution] Pipeline (NY) ~ Surfrider Foundation (Nat'l) ~ The Franciscan Response to Fracking (North Jersey Chapter)(NJ) ~ The Watershed Partnership, Inc. (CT) ~ Thomas Merton Center ~ Three Parks Independent Democrats ~ United for Action (NY) ~ Upper Missouri Waterkeeper, Inc. ~ Upper Unadilla Valley Association ~ Village of Cooperstown New York ~ Wabash Riverkeeper, Inc. ~ WATERSPIRIT ~ West Virginia Highlands Conservancy ~ Westchester for Change (NY) ~ Westmoreland Marcellus Citizens' Group ~ Yadkin Riverkeeper, Inc. (NC) ~ Youghiogheny Riverkeeper

December 6, 2013

Docket Management Facility (M-30)
U.S. Department of Transportation,
West Building Ground Floor
Room W12-140
1200 New Jersey Avenue SE.
Washington, D.C. 20590-0001

Re: Docket Number USCG -2013-0915

We, the undersigned organizations, oppose the Coast Guard's proposed policy letter to permit shale gas extraction wastewater to be carried on the Nation's rivers. We submit this letter because our

organizations and members have deep interest in the protection of our rivers from pollution and consider the proposal to allow transport of this wastewater to be unacceptable.

Toxicity

Shale gas extraction wastewater (“frack” wastewater) is highly toxic and contains chemical contaminants that pose significant risks to human health and the environment.¹ Wastewater constituents, with contamination levels that vary widely depending on well specifics,² include chlorides, bromides, and sulfides of calcium, magnesium, and sodium, barium, manganese, iron, and strontium, oil, grease, and dissolved organics -- BTEX -- and naturally occurring radioactive materials.³ Some of the many contaminants found in samples include benzene, mercury, arsenic, barium, 2-Butanone/Methyl ethyl ketone, naphthalene, acrylonitrile, and methanol.⁴ Some of these are known carcinogens, and many have other harmful health effects. Bromides in source water, for example, can form brominated disinfection by-products (DBP’s) in treated water supplies, which can cause cancer.⁵ A recent study found elevated levels of chloride, bromide, strontium, radium, and barium in frack wastewater and dangerously high levels of radium-226 in stream sediments downstream of a wastewater treatment facility in western Pennsylvania that processed frack wastewater.⁶ Radioactive concentrations in the Marcellus Shale formation are at concentrations 20 to 25 times background, making shale gas wastewater from this formation extremely radioactive.⁷ Radium-226, a decay product of the Uranium-238 decay chain, is taken up like calcium into bone⁸ where it concentrates. Radium-226 can cause lymphoma, bone cancer, and diseases that affect the formation of blood, such as leukemia and aplastic anemia. The radioactive decay product of radium is radon, which is very dangerous and is the second leading cause of lung cancer in the United States.⁹

Produced water from Marcellus Shale can have salt and mineral levels 20 times higher than coalbed methane wells, for instance.¹⁰ High salt levels (represented as Total Dissolved Solids or TDS), typical

¹ U.S. Dept. of Energy, Argonne National Laboratory, “A White Paper Describing Produced Water from Production of Crude Oil, Natural Gas, and Coal Bed Methane”, January 2004.

² US General Accountability Office, *Information on the Quantity, Quality, and Management of Water Produced During Oil and Gas Production*, GAO-12-56, January 2012.

³ U.S. Dept. of Energy, Argonne National Laboratory, “A White Paper Describing Produced Water from Production of Crude Oil, Natural Gas, and Coal Bed Methane”, January 2004.

⁴ New York State Department of Environmental Conservation, *Revised Draft Supplemental Generic Environmental Impact Statement on the Oil, Gas, and Solution Mining Regulatory Program, Well Permit Issuance for Horizontal Drilling and High-Volume Hydraulic Fracturing to Develop the Marcellus Shale and other Low-Permeability Gas Reservoirs*, September 2011, Table 5.9

⁵ PADEP “Permitting Strategy for High Total Dissolved Solids (TDS) Wastewater Discharges”, April 11, 2009.

⁶ **Impacts of Shale Gas Wastewater Disposal on Water Quality in Western Pennsylvania**
Nathaniel R. Warner, Cidney A. Christie, Robert B. Jackson, and Avner Vengosh, Division of Earth and Ocean Sciences, Nicholas School of the Environment, Duke University, Durham, NC, *Environ. Sci. Technol.*, 2013, 47 (20), pp 11849–11857 <http://pubs.acs.org/doi/abs/10.1021/es402165b>

⁷ Marvin Resnikoff, Ph.D., Radioactive Waste Management Associates, “Comments on Marcellus Shale Development”, October 2011.

⁸ <http://www.epa.gov/radiation/radionuclides/radium.html#inbody>

⁹ Ibid.

¹⁰ US General Accountability Office, *Information on the Quantity, Quality, and Management of Water Produced During Oil and Gas Production*, GAO-12-56, January 2012.

of Marcellus Shale gas wastewater, are toxic to the natural environment and can carry significant adverse impacts, including impairment and death of aquatic life.

The Coast Guard recognizes the dangers associated with transporting frack wastewater in the document addressing this docket **“Proposed Policy Letter: Carriage of Conditionally Permitted Shale Gas Extraction Waste Water in Bulk” issued 10.30.2013.**

At 7.c. the Coast Guard explains that frack wastewater cannot be treated like other “listed cargo” “because the specific chemical composition of the Shale Gas Extraction Waste Water varies from one consignment load to another and may contain one or more hazardous materials as defined in 46 CFR 153.2, including radioactive isotopes such as radium-226 and radium-228, (Ra-226, Ra-228), which are known to be elevated in the Marcellus shale”.¹¹ It is stated that variables include chemicals in the drilling fluids used to extract gas, the geologic properties of the specific well site, the age of the well, and the fact that a load can represent a mixture of wastewater from different wells.

Due to the hazardous components of the frack wastewater, including the radioactive properties, and the uncertainty as to the make-up of individual loads, the Coast Guard proposes a chemical analysis of each consignment load by the barge owner according to specifications outlined in **Enclosure (1).** This condition provides “bells and whistles” that the Coast Guard proposes are essential for management and emergency response. However, this provision is poorly worded because it could be read to be voluntary when in fact it is mandatory.

Further, if a chemical analysis is conducted it is done by the barge owner (not an independent agency) and the results are not automatically filed with the Coast Guard, only kept by the barge owner (and only for two years). While it is stated that this data is subject to the Freedom of Information Act, it is further stated **at 8.c.** that “the identity of proprietary chemicals may be withheld from public release pursuant to the FOIA and applicable Coast Guard policy”.

The inherent complexity, hazardous components, and radioactive properties of the wastewater results in highly dangerous materials being handled on these barges on our waterways. The unpredictability of the make-up of the wastewater and the constituents that are kept secret from the public, further compound the management difficulties. Catastrophic damages from spills and accidents and pollution and degradation that cumulatively occur over time through the routine operation of the carriage of frack wastewater by barge on our waterways can be expected to occur under this proposed policy letter.

Volume

The production of wastewater by shale gas extraction increased by 570% between 2004 and 2010, overwhelming current wastewater disposal capacity, and increased development of the 19 shale deposits currently identified in the U.S. is expected.¹² Some claim that much of this wastewater is

¹¹ pubs.usgs.gov/sir/2011/5135/pdf/sir2011-5135.pdf

¹² Lutz, Lewis and Doyle, “Generation, transport, and disposal of wastewater associated with Marcellus Shale gas development”, American Geophysical Union, Water Resources Research Vol. 49, Issue 2, DOI: 10.1002/wrcr.20096, 2.2013.

being “recycled” or reused for hydraulic fracturing (“fracking”) of new wells but Pennsylvania records show that about 32.8% of wastewater is being reused (these figures are self-reported and are not independently verified).¹³ It is not possible to recycle all the wastewater since there is always a residue or amount that will be unusable due to high levels of certain constituents that have concentrated or compounds that have been created synergistically in the flowback from drilling and fracking. Further, reuse or recycling is not required by any agency and is strictly left to the operator to decide based on their own interests and economic “bottom line”. The less expensive means of getting rid of waste will be the route most used by operators. If carriage by barge to a facility is quicker, less expensive and available, it can be expected to be the method of choice.

Therefore, the utilization of barges for the transport of frack wastewater to facilities or injection wells can proliferate under this proposal because it may be less expensive to the operator (transferring external cost to the public, other entities, other places and future time) even if the Coast Guard does not expect the carriage of wastewater in bulk by barge to be widely used. The policy letter and the system set up to manage these approvals does not contemplate wide usage but should. A much more developed program of regulation would be needed to effectively manage such an activity and it should be set up at inception of the activity, not retrofitted at a later time, after negative impacts have occurred.

Shale gas wells utilize long and deep well bores and fracking employs about 5 million gallons of injected water per well; the result is large volumes of wastewater, about six times more waste than conventional wells. A recent study estimates in 2014 the volume of total wastewater produced will be about 10 times greater than a decade earlier in the Marcellus Shale in Pennsylvania.¹⁴

In September, the U.S. Department of Energy approved the export of liquefied natural gas (LNG) from Dominion Resources’ Cove Point import terminal in Maryland, the fourth such project authorized in the United States. Dominion Resources has a contract for 20 years with companies in Tokyo and New Delhi. Once that project is operational, gas drilling in the nearby Marcellus Shale is expected to escalate in Pennsylvania, Ohio, and West Virginia. The interest for barge shipments of wastewater by GreenHunter on the Ohio River, which runs through shale country, is no coincidence. The Energy Department’s August approval to Lake Charles Exports for an LNG export facility in Louisiana and previous approval for the Sabine Pass LNG terminal in that state mean more drilling as well, which is a sure bet for barge transport applications on the Mississippi. There are about 18 other LNG applications pending which could further spur “hot spots” of intense shale gas development.

As shale gas extraction intensifies, the pressure for more ways to move wastewater to more places will build. It could even be expected that plans for new wastewater injection wells and disposal facilities will emerge along the nation’s rivers, a secondary impact that is not contemplated by the Coast Guard’s cursory policy letter review process. In fact, the Coast Guard policy letter will apply to all navigable waterways in the United States, making the implications of this approval of national importance. We oppose the opening up of our nation’s rivers to frack wastewater transport and the

¹³ Ibid.

¹⁴ Ibid.

jeopardy imposed by this toxic, radioactive mixture on our drinking water and the natural assets of our rivers.

Risks

The Coast Guard includes a “Disclaimer” **at 6**, that describes the policy letter as “guidance” that supplies “one approved means of determining if Shale Gas Extraction Waste Water (SGEWW) meets the criteria to be Conditionally Permitted...” They further state that the barge owner “may request” written permission for “a specific barge to carry loads” by following the limits set forth in Enclosure (1) **OR** through other means” that meet “a level of safety equivalent to” the criteria in Enclosure (1).

This appears to be a waiver of the specific requirements of the all-important Enclosure (1). The means used to meet criteria in Enclosure 1 that are prescribed in great detail by the Coast Guard can be waived without any further public scrutiny at the discretion of Coast Guard staff if deemed to meet the same level of safety. This seems to relieve the barge owner of the specific means used to meet the requirements for the analysis for hazardous materials including radioisotopes using the Pennsylvania Waste Management Form 26R **at (1) 1.**; the criteria to determine if SGEWW can be carried as conditionally permitted SGEWW **at (1) 2.** including the application of a radioactivity concentration limit through prescribed analytical calculations and the requirement for the survey of a tank previously used for SGEWW for radioactive scale build up prior to carrying a different cargo using the Pipeline and Hazardous Materials Safety Administration’s (PHMSA) regulations.

Also waived seems to be the specific safeguards applying safety conditions and procedures to protect personnel **at (1) 3.** Concern regarding personnel being exposed to dangerous levels of radiation from the buildup of radioisotopes inside barge tanks is recognized by the Coast Guard and PHMSA standards are prescribed in this section. But the **Disclaimer at 6**, apparently allows these specific standards to be avoided by an alternative, as yet unknown, method at the discretion of Coast Guard staff without any public review or independent analysis.

We disagree that the Coast Guard can move forward with this proposal as a “policy letter”. We consider this proposal to require regulatory action. A rulemaking will more clearly prescribe the rules, how to achieve compliance, a consistent and transparent process to be used to implement the policy, and an effective means to enforce the intent of the proposal. It will better address the risks involved. It will also allow for needed environmental analysis, discussed further below.

A rulemaking will also require a public participation; the Coast Guard has made it clear the policy letter process does not require a public comment period and they state they have provided 30 days at their discretion. The 30 day comment period, however, is too short and since the regulations.gov web portal has been shut down for at least 5 ½ days – and many other hours that made the system nonfunctional on other days – the 30 days has been reduced to even fewer days. Also, Thanksgiving and Veterans Day fall within the comment period and both are federal holidays; people are busy with family life and community activities on these days. We request an extension of the public comment period to at least 120 days. This time is needed so the public can adequately engage in this complicated proposal and give meaningful input to the Coast Guard.

We oppose any allowance for alternative methods that are not explicitly defined for meeting the prescribed standards that would be approved by Coast Guard staff. All proposed standards and the methods used to meet those standards should be part of the Coast Guard proposal. Further, we question if the prescribed standards have been vetted thoroughly. For instance, PHSMA regulation 176.715 has not been updated since 1995, and 173.433 not since 1998. We question if these are up to date enough to be applicable.

The Coast Guard, despite the recognized management issues of this complex and toxic waste, seems to grant approval to the barge owner **at 8.a. and b.** and it is not clear if each load on each barge shipment is subject to meeting the prescribed standards or if the Certificate of Inspection will allow for multiple shipments on the barge. Also, since the barge owner is the applicant, any party operating the barge receives the permission to transport, which can lead to lack of adequate oversight if the owner is basically an “absentee”. The proposed activity, being handled as a policy letter by the Coast Guard, is already lacking close oversight and prescribed implementation of consistent standards; the removal of the barge owner from the operation can further remove needed supervision for this dangerous cargo, increasing the risk of poor performance that can result in spills, accidents or other means of pollution release.

The risk of release of hazardous materials is also increased by the lack of a mandatory requirement for Surveys as described **at 8.d.** The Coast Guard recognizes, once again, the danger of cross contamination and/or the buildup of contaminants – hazardous materials, including radioactive isotopes – in tanks that may be used for other cargo. To address this problem, the Coast Guard prescribes a survey of tanks and equipment prior to another use and the keeping of records of the analyses that are done. But this “additional requirement” can be met through “other means” as stated in Disclaimer at 6., if approved by the Coast Guard. This approval requires no further public scrutiny and could reduce effective oversight and impair safety and consistent management.

The risk of exposure to radon that can accumulate in tank head spaces is addressed by the Coast Guard to protect barge personnel. This is an important safeguard. However, we are concerned that simply avoiding the area is not effective enough protection for barge workers. We suggest an analysis by OSHA and the U.S. Department of Health. Further, we are concerned that radon vented as described can, locally or regionally, raise area background radon levels, impacting public health and the environment. To provide protection from radon exposure for workers and for the public and environment, we advocate that limits be set for radon that disallows wastewater above certain limits to be transported by tank, radon monitoring be required, that data from the monitoring be made available to the public through an on-line reporting system, that vents be filtered to remove radon if levels are found to have the potential to raise area background levels and that personal protection or other measures be required for barge personnel to protect from radon exposure, and that this issue be vetted thoroughly with the U.S. Department of Health and other relevant agencies.

The risks imposed on the public, barge personnel, and the environment by the carriage of frack wastewater are too great to allow this activity. Surface water supplies 68% of U.S. residents with drinking water.¹⁵ Even though that water is treated or filtered in some way before it reaches the tap,

¹⁵Centers for Disease Control, http://www.cdc.gov/healthywater/drinking/public/water_sources.html

the Centers for Disease Control state that the cost of treatment and the risks to public health can be reduced by protecting source water from contamination.¹⁶

Truck transport is often compared to barge transport. But we point out that trucks will still need to be used to transport the wastewater to the barge locations so truck traffic is not eliminated. Also, if there is an accident where the contents of a truck is spilled, the scope of the release is defined by the size of the truck—typically 5000 or 6000 gallons. An accident with a barge has the potential to be much greater, expanding the risk of pollution.

These barges are expected to carry 10,000 barrels of wastewater; at 42 gallons to a barrel, a full barge could release 420,000 gallons of wastewater. Just 80,000 gallons of oil that was spilled from a barge on the Mississippi River in February of this year fouled 16 miles of river, backed up barge traffic for about a week and halted 1000 barges before river traffic was able to resume, costing serious economic losses and environmental harm.

Frack wastewater spilled directly into a waterway has an instantaneous impact that is very difficult to contain. While there are methods (which may or may not be effective) to attempt to address or mitigate oil spills (i.e. booms, sponges, skimming) the behavior of frack wastewater when released into a flowing body of water is not understood and methods of containment have not been developed. The wastewater is likely to instantly mix with the surface water to some degree and some constituents may sink to the bottom, immediately contaminating the water and posing a serious emergency for all area or downstream drinking water intakes. According to emergency management protocols, drinking water intakes downstream would usually be shut down until water quality tests proved the river water safe. This kind of catastrophe is more likely than not to occur with increased barge traffic from the carriage of wastewater, especially on rivers with limited shipping channels or already heavy traffic.

High salts in the wastewater can cause pipe corrosion and other operational problems for industrial intakes, whether from a spill or accident or from an increase in contaminants over time. A high TDS condition - caused partly by gas drilling wastewater discharges - in Pennsylvania's Monongahela River led to a bottled water advisory for 325,000 people, including the city of Pittsburgh, three times in 2008-2009 and caused power plant and manufacturing plants to shut down due to equipment damage. Salty water from a combination of coal mining pollution and gas waste released over many months caused everything with gills to die in a 40 mile stretch of Dunkard Creek on the border of Pennsylvania and West Virginia in 2009, one of the worst ecological disasters in Pennsylvania history. A spill of untreated frack wastewater into our fresh water rivers could be catastrophic for fish and fishlife and the cumulative impacts of small spills over time on these fresh waterways can substantially degrade water quality and the viability of aquatic habitats.

Except for the venting of radon, the proposed policy letter does not address air emissions from frack wastewater. It is known that certain pollutants contained in frack wastewater, such as volatile organic compounds and methanol, evaporate to the air. Air pollution directly impacts human health in an airshed and the pollutants deposit on water and land, spreading the pollution further. Whether a one-time release or a routine off gassing of pollutants, air emission from the barges should be assessed and

¹⁶ Ibid.

monitored in order to avoid air pollution. This is essential to avoid the risk of negative human health effects and environmental pollution from air emissions.

Prevention of Pollution

Considering the preponderance of evidence and data on the constituents and volume of shale gas extraction wastewater, it defies common sense to allow frack wastewater to be carried on our rivers.

U.S. E.P.A. advises that the best way to protect drinking water sources is to prevent pollution by reducing the ways water can become contaminated.¹⁷ Our navigable waterways are vulnerable to many sources of pollution. Indeed, many dangerous activities occur every day on our rivers. However, this is no reason to allow more of them. In fact, the many chemicals we are exposed to through activities in our environment argues for a cumulative impact analysis that considers the risk of negative health effects of exposure to multiple chemicals. The National Academies Emerging Science for Environmental Health Decisions Committee reports that scientists are calling for conducting a cumulative risk assessment for environmental mixtures that can consider the combined effects on human health as a more accurate way to assess potential health effects.¹⁸

Certain activities have been permitted by government agencies even if there is the potential for pollution. However, the analysis that an agency applies to assess the risks and dangers that come with an activity require rigorous analysis and scientific review. **At 9.** the Coast Guard's internal nonpublic review concludes that USCG Categorical Exclusion #33 applies and the activities are "categorically excluded" because there is no significant cumulative impacts on the human environment, no substantial controversy or substantial change to existing environmental conditions and no inconsistencies with any other laws.

We do not agree based on the information we have provided in this letter about the substantial public health and environmental impacts that accompany the proposed transport of frack wastewater on our rivers, about what is not addressed or known about this activity, and because the public has shown tremendous interest in this proposal since it was first proposed on the Ohio River and since that time through public comments submitted during this comment period. Also, this letter is being filed by a broad and geographically varied list of organizations that collectively represent millions of Americans who consider this proposal to be highly controversial and oppose its approval.

Formal Rulemaking and Environmental Impact Study Required

If the Coast Guard proceeds with this proposal, it must be through a full rulemaking with an environmental impact study that comprehensively assesses the impacts of the activity. Alternatives need to be fully considered and upstream (gas drilling, fracking, waste generation, etc.), midstream (truck traffic and/or pipelines from the well site to the barge location, uploading and off-loading of wastewater, temporary storage of wastewater, terminal development or construction changes to accommodate bulk transfers and carriage needs, etc.), and downstream (wastewater injection into disposal wells, processing at treatment facilities, etc.) and all water and air impacts as well as

¹⁷ http://www.epa.gov/safewater/sourcewater/pubs/guide_swppocket_2002.pdf

¹⁸ <http://nas-sites.org/emergingscience/files/2011/05/mixtures-newsletter-9.17-posting.pdf>

secondary effects such as noise, lights, traffic, and other impacts, all need to be evaluated fully for this activity.

Precautions such as stormwater runoff avoidance and spill prevention controls for midstream activities, double hulled tanks, secondary containment, effective emergency management procedures, air and water monitoring and public reporting of information and other safety measures should be considered as part of a comprehensive environmental review. By assessing all impacts comprehensively, a realistic picture can be developed of the effects of the decisions to be made and various options considered. The National Environmental Policy Act provides a process to do this – the environmental impact study. This is the method the Coast Guard should use if they pursue this proposal.

Our Rivers

Our rivers provide drinking water for millions of Americans, the quality of these waters support important economic activities and contain and sustain irreplaceable assets, including natural ecosystems, fish and aquatic life and diverse flora and fauna. As a nation, we are investing billions of dollars and community effort in “reconnecting” cities and towns with our rivers. The social, economic, cultural and quality of life benefits being reaped from riverfront access, trails and natural parks along our rivers has led to revitalization of many areas that were previously in decline. We do not want to expose these communities to the pollution that would accompany the transport by barge of frack wastewater, devalue the investments we have made or risk the health of our communities who live and work there.

The natural values of our rivers are of benefit to us all since a healthy river means a healthy economy and the values that support important activities such as commerce, tourism, fishing, and recreation. High quality drinking water and clean air require protection of the river that is at the center of our watersheds. We cannot compromise those values with this proposed activity.

We request that the Coast Guard not approve the proposed “policy letter” and that the comment period be extended to 120 days to allow a more robust public participation process that will allow the public to give meaningful input into the decision making of the agency.

Sincerely,

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