Testimony of
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Examination of the Safety and Security of Drinking Water Supplies Following the Central West Virginia Drinking Water Crisis

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Good morning Chairman Cardin, Ranking Member Boozman, and members of the subcommittee, I am Erik D. Olson, Senior Strategic Director for Health and Food at the Natural Resources Defense Council (NRDC). I appreciate the opportunity to testify today at this important hearing. NRDC is a national, non-profit organization with over 1.5 million members and activists that works to safeguard human health and the environment.

On January 9, 2014, residents of Charleston, West Virginia—and soon people across the state, nation, and the world—learned that the drinking water of over 300,000 people in and around Charleston was contaminated due to a large chemical release from a Freedom Industries facility immediately upriver from the city drinking water plant's intake. Gradually the facts started to come out. First, we were told that the chemical—which has a smell like licorice—was Crude MCHM, primarily 4-Methylcyclohexane methanol. Twelve days later, the company admitted that another chemical, PPh, or polyglycol ethers (apparently propylene glycol phenyl ether), also had been released, in smaller amounts. Toxicity data for the chemicals was, to put it mildly, sparse, so officials trying to determine a "safe" level were working with very little information.

A series of shock waves traveled through the city as the residents were told not to drink or bathe in the water. Days later, the federal Centers for Disease Control and Prevention (CDC) teamed up with state health officials and told residents that a 1 part per million (ppm) level on MCHM was basically ok. Residents were soon told the water system had been flushed out and the water was safe enough to drink (at least in some parts of the distribution system). But then the next day citizens were told that "CDC recommends—out of an abundance of caution—that pregnant women drink bottled water until there are no longer detectable levels of MCHM in the water distribution system." Understandably, residents were confused and upset, wondering whether it really was safe for their kids, nursing moms, and others. As my colleague Dr. Jennifer Sass has highlighted in her detailed commentary,[1] the supposedly safe level proclaimed by state and federal officials was based on very little information, and was not sufficiently protective of vulnerable people like pregnant moms.

Last weekend, I visited with many residents in Charleston and appreciated the courtesy of West Virginia American officials who gave me a tour of their water treatment plant. Many of the residents I spoke with over the weekend and earlier are profoundly upset and deeply skeptical of reassurances of the water's safety. Many stores and restaurants across the city continue to advertise bottled water sales, and some restaurant signs proclaim that they cook with bottled water, despite reassurances that the water is now safe in most of the city.

I met one couple, Harish and Meena, who own a small Indian restaurant and grocery store within view of the gold-domed state capitol. They had to shutter their restaurant for 5 days, and tossed a lot of food. Due to the lack of cash flow, they had to borrow money to meet payroll, ask people to hold checks, and spent great deal of money on replacement food, professional cleaning of equipment to get rid of the chemicals, and many other expenses. They are still spending money to buy bottled water by the case for cooking and service. They even had to change some of their recipes because spices important to Indian food taste a bit like licorice. They couldn't use those spices out of concern that their food would be rejected by customers suspecting contamination. Their grocery store also lost money from fresh foods that went bad because people stopped cooking due to a lack of water.

I heard stories of people driving to Kentucky to get bottled water during the crisis, and of many families who had to stay far away with friends or relatives, or drove 60 miles to take a shower. I heard about a pregnant mom who was upset that she had returned to using the water after being assured of its safety, only to be told later that "out of an abundance of caution," maybe she shouldn't have done so. Parents are angry that recent tests show levels of the chemicals in schools are higher than expected, and many are skeptical of assurances of safety.

One remaining issue is that apparently all of the testing done by state, utility, and other government officials is being done at hydrants or public locations (such as schools), not inside homes. Andrew Whelton and his team of scientists from the University of South Alabama, initially without funding, drove to Charleston and started to conduct at the tap sampling of drinking water, which they hypothesized may be of different quality than that coming from flushed hydrants. For example, even if homeowners have now flushed the water in their homes as recommended, some worry that the chemicals may have penetrated into their plastic water piping during the days that the water was stagnant, and that the chemicals may continue to be released into the water for some time. While Whelton's team recently received a small grant from the National Science Foundation, there are insufficient resources to conduct an extensive testing regime that would be representative of the 300,000 customers affected. This is an issue with the way that SDWA testing is generally conducted—usually not at the tap of actual users.

Apparently the water intake at Charleston, like that of many other water utilities across the country using rivers and lakes, cannot simply shut off when there is a big spill and continue to serve water to customers unaffected water. The treatment technology at Charleston—basically permanganate, sedimentation and clarification, sand and gravel filters with about three feet of carbon caps, available powdered activated carbon to deal with occasional taste, odor, and other problems, and chlorination—simply was unable to deal with a significant release like this. And they had no other water source that they could turn to, though West Virginia American Water officials told me they had requested access to an alternative source many years ago.

There are likely hundreds of other water utilities, large and small, using surface water that simply cannot deal with a significant spill, release, or other major pollution in their watershed. Many of

us remember the massive oil spill in 1988 by an Ashland Oil facility that rolled down the Monongahela and Ohio rivers, temporarily contaminating drinking water sources for what EPA estimated was one million people in Pennsylvania, West Virginia, and Ohio.

Cincinnati, Ohio had the foresight twenty years ago to install deep bed granular activated carbon (GAC) because of repeated spills and other water quality problems, including those caused by upstream polluters on the Ohio River. The cost? About $20 per household per year.[2] The vast majority of large surface water systems do not use such modern technology, leaving them vulnerable to spills and other pollutants from upstream sources.

Where Did the System Fail?

The Safe Drinking Water Act

The public water supply provisions of the Safe Drinking Water Act (SDWA) as originally enacted in 1974 were focused upon setting standards for contaminants in drinking water and moving water systems towards improved treatment—but did virtually nothing to ensure what experts in the field refer to as "multiple barriers to contamination"[3]—that is, protection of water sources against pollution, as well as effective treatment. The law focused on treatment, not protection of the sources of the water, which the SDWA left largely unaddressed.

However, the SDWA Amendments of 1996 (Pub.L. No. 104-182) included provisions requiring that states complete source water assessments to assess whether water supplies are vulnerable to pollution. These assessments are supposed to evaluate what the current and potential pollution sources are upstream of surface water-supplied public water systems, or that could contaminate groundwater-supplied systems. While NRDC and a coalition of public health, consumer, and environmental groups had urged the inclusion in the 1996 legislation of strong enforceable source water *protection* provisions that would prevent or remedy upstream or up-gradient water pollution, these measures were opposed by some polluting industries and agricultural interests, and were not included in the final legislation.

Thus, under section 1453 of the SDWA, source water assessments were EPA-funded across the country, but it appears that too often, they were completed but little or nothing was done when they identified significant known or potential pollution sources upstream of water intakes. We have reviewed many of these documents from water systems all over the United States. Most of those for surface water systems highlight known or potential industrial, commercial, or other sources of pollution upstream of their facility.

For example, West Virginia's source water assessment for Charleston (Elk River) found high vulnerability of the water supply to contamination from upstream polluters like this facility.[4] In fact, the assessment identified 53 "Potentially Significant Contamination Sources" in the Charleston water supply's watershed, including 26 so close they were in the "Zone of Critical Concern." This included 7 industrial facilities in the Zone of Critical Concern.[5] Presciently, the assessment found that "Of these [Potentially Significant Contamination Sources], some of the industrial sources may have large volumes of potential contaminant stored." Recognizing the risks, the assessment recommended: "Protection options need to be actively considered to further evaluate and manage all potential contaminant sources and the WVAWC-Kanawha Valley public water supply should place a high priority on protecting its supply source."[6]

Unfortunately, there is little evidence that either the state or the water utility acted on these recommendations or took effective action to address the identified pollution sources.

Absent a huge effort to collect and review every source water assessment completed for thousands of water systems, there is no way of knowing the precise number of drinking water plants that, like the Charleston system, have major known or potential polluters upstream. However, based on my experience with the Safe Drinking Water Act for over 25 years, and from my review of a large number of source water assessments nationally, it would be reasonable to surmise that virtually every state has a similar situation for at least some of their drinking water supplies. Most big cities get their water from surface water, and most surface water is vulnerable to industrial pollution and spills, as well as other pollution sources. Groundwater-supplied drinking water utilities also often are vulnerable to contamination. NRDC did a report in 2003 documenting that most cities reviewed are doing little if anything to protect their source water,

though a few, such as New York, Seattle, Boston, and Portland, Oregon, have taken significant steps to protect their sources of fresh water.[7]

Two other provisions in the SDWA are worthy of note here. The Bioterrorism Act of 2002 (Pub. L. No. 107-188, Title IV), added section 1433 to the SDWA, requiring that larger public water systems complete two tasks. First, the utility is required to complete a vulnerability assessment, in which it is to evaluate how it is vulnerable to a terrorist or intentional attack, and what measures it will take to prevent or mitigate the impacts of such an attack. Substantial federal funding was provided, but these assessments are not publicly available so it is impossible to evaluate whether the money was well spent. We do not know whether the vulnerability assessment for this utility evaluated the potential for an intentional act that could have caused a major release from an upstream contamination source. Second, the water systems also are required to develop emergency response plans for how they will deal with any attack, to avoid disruption and protect their customers. Again, these are confidential, so it is hard to know whether the plan helped expedite or improve the response here. States with primacy under the SDWA have also been required since 1974 to have "plans for provision of safe drinking water under emergency circumstances…"[8] Unfortunately, in this case according to residents, it was difficult to obtain safe drinking water for some time after the incident, though the National Guard and utility did bring in tankers and alternative water after a while.

The Need for Stronger Protections: The Manchin-Boxer-Rockefeller Chemical Safety and Drinking Water Protection Act of 2014

The recently-introduced Chemical Safety and Drinking Water Protection Act, S. 1961, sponsored by Senators Manchin, Boxer, and Rockefeller, would take important steps to begin to address some of the clearest problems brought to light after the West Virginia spill. The legislation would require that primacy states develop programs to inspect and ensure safeguards for covered chemical storage facilities that could pose a risk of harming a public water system. It would require the facilities to adopt certain safety measures and show financial responsibility. It also would require them to reimburse state or federal authorities for the cost of responding to a release, and would require certain assurances that the safety of facilities whose ownership is transferred is addressed. Additionally, emergency response plans are required of the covered

chemical storage facilities; these plans will be shared with the water utility, EPA, the state, and the Department of Homeland Security. Provisions for enforcement and implementation by states (or by EPA if a state does not adopt the plan) are established. Importantly, emergency authority is provided to public water systems to act in the case of an imminent and substantial endangerment of their water supply, an authority now available only to EPA.

We support the legislation as a significant step forward. We have a few detailed comments that we would be pleased to share with the committee about issues including clarifying the definition of a covered facility and tightening the scope of information that would be kept confidential, for example. Additionally, we believe that more frequent inspection—we would recommend annual inspections of covered chemical facilities as required by the legislation that recently passed the West Virginia Senate[9]—would offer greater assurance of protection. A lot of corrosion, maintenance, leakage, or other problems can crop up in 3 to 5 years. Thus, we strongly support moving forward with this targeted legislation immediately to address the urgent problem of chemical storage facilities posing risks to downstream drinking water supplies.

The Clean Water Act

Since 1972, the Clean Water Act (CWA) has included a provision (§311(j)(1)(C)) requiring that, "[c]onsistent with the National Contingency Plan,…as soon as practicable after the effective date of this section, and from time to time thereafter, the President shall issue regulations consistent with maritime safety and with marine and navigation laws … (C) establishing procedures, methods, and equipment and other requirements for equipment to prevent discharges of oil and hazardous substances from vessels and from onshore facilities and offshore facilities, and to contain such discharges…."

While EPA established Spill Prevention Control and Countermeasure (SPCC) rules for oil decades ago, comparable requirements for hazardous substances do not appear to have been promulgated. Thus, while as mentioned above, we strongly support moving forward with S. 1961 to address the immediate emergency need for protection of drinking water supplies, we believe there remains a need for a long-term, broader solution—that EPA should adopt comprehensive SPCC rules for hazardous substances under section 311 of the Clean Water Act, which would

also protect environmental resources. We would recommend that EPA be required to issue these by a specified deadline in the same legislation.

In addition, I should mention the need to restore CWA protections to many headwater streams and wetlands, many of which feed drinking water supplies. My colleague Jon Devine discusses this issue in greater detail elsewhere[10], but in summary:

- The spill illustrates that drinking water supplies are vulnerable and deserve strong pollution protections.
- Drinking water systems serving over 117 million Americans rely, at least in part, on small headwater streams and streams that do not flow year-round for their supply.
- Because of a pair of Supreme Court cases and subsequent policies implemented by the Bush administration, many of these streams and the wetlands that sustain them are in legal limbo, such that it is unclear whether the various pollution control programs under the Clean Water Act protect them.
- The Obama administration has initiated a rulemaking – with a proposed rule expected imminently – to clarify that tributary streams and many wetlands are entitled to the Clean Water Act's safeguards, as they long had been before the recent legal mess. This is critically needed, and therefore should proceed promptly.

The Toxic Substances Control Act

While this statement is not intended to address the arguments regarding the need for reform of the Toxic Substances Control Act (TSCA), it is important to note a few issues that have arisen lately in the context of this spill. It is true that the utter failure of TSCA is highlighted by this spill—here, most of the toxicity characteristics of a chemical used in large quantities and stored in a manner that caused a contamination incident affecting over 300,000 Americans' tap water—are virtually unknown. The Material Safety Data Sheets (MSDS) for MCHM and for PPh are rife with "no data available" statements for innumerable toxic effects of these chemicals. TSCA has been a failure—we simply don't know much if anything about the toxicity of these and thousands of other chemicals used in commerce, including many that are in widespread use. And there are virtually no rules applicable to ensure safe use of most of these chemicals.

Thus, clearly there is a need for real reform and an overhaul of TSCA. However, as my colleague Daniel Rosenberg has detailed elsewhere,[11] the legislation that has been suggested by some as a solution to this problem—the Chemical Safety Improvement Act (CSIA, S. 1009)—as introduced would not only fail to fix the problems highlighted by this spill, but would actually make matters worse. For example, Rosenberg points out that the bill would prevent EPA from requiring testing of a chemical like MCHM unless it has been classified as "high priority," which in many cases as here may be difficult without some additional testing. This would be true of thousands of chemicals, due to the lack of available health data. Additionally, if MCHM or PPh ended up being classified as a low priority because EPA found it met the weak standard in the bill, states would have been preempted from taking action on it. Thus, as Rosenberg concludes:

> In short, the problems with TSCA that are illustrated by the chemical spill in West Virginia would not be fixed by the Chemical Safety Improvement Act, as introduced, and in some respects they would be made worse. The bill as currently written would provide the public with the illusion of an effective federal program to regulate chemicals, while tying the EPA in knots and taking away existing state authorities. The chemical spill in West Virginia is an illustration why we need to strengthen the Toxic Substances Control Act (and certain other environmental laws); it is not a justification for enacting a flawed CSIA.

Conclusion

The West Virginia incident highlights the many holes we have in current federal environmental laws. We urge Congress to move forward with enacting legislation like the Manchin-Boxer-Rockefeller Chemical Safety and Drinking Water Protection Act as an immediate measure. We also recommend real reform of TSCA that unlike some pending proposals substantially strengthens current law, and that steps be taken as recommended to strengthen implementation of the Clean Water Act.

NOTES

[1] Dr. Jennifer Sass, "WV Chemical Spill of MCHM - doing the math on drinking water safety." (posted January 19, 2014). http://switchboard.nrdc.org/blogs/jsass/doing_the_math_on_the_west_vir.html
[2] Westerhoff et al, "The Cincinnati GAC Experience, Government Engineering (2009), available online at http://www.govengr.com/ArticlesMar09/Cincinnati.pdf
[3] EPA, "Multiple Barrier Approach to Public Health Protection." Available online at http://www.epa.gov/ogwdw/smallsystems/pdfs/guide_smallsystems_mba_09-06-06.pdf
[4] West Virginia Department of Health and Human Resources, "State of West Virginia Source Water Assessment and Protection Program Source Water Assessment Report WVAWC - Kanawha Valley, Kanawha County, PWSID: WV3302016. Available online at http://www.wvdhhr.org/oehs/eed/swap/get.cfm?id=3302016
[5] Ibid, page 5.
[6] Ibid, page 7.
[7] NRDC, "What's On Tap: Source Water Protection." (2003). Available online at http://www.nrdc.org/water/drinking/uscities/pdf/chap04.pdf
[8] SDWA section 1413(a)(5).
[9] West Virginia Senate Bill 373, passed State Senate January 28, 2014. Available online at http://legiscan.com/WV/bill/SB373/2014
[10] Jon Devine, "What the West Virginia Chemical Spill Teaches Us About Clean Water." (posted January 17, 2014), http://switchboard.nrdc.org/blogs/jdevine/what_the_west_virginia_chemica.html
[11] Daniel Rosenberg, "The Chemical Safety Improvement Act will not solve the problems illustrated by the West Virginia chemical spill." (posted January 15, 2014), http://switchboard.nrdc.org/blogs/drosenberg/the_chemical_safety_improvemen.html