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Office of Transportation and Infrastructure**

**Joint Environment and Transportation and Public Utilities Committee  
Hon. Katherine Gilmore Richardson and Hon. Kenyatta Johnson, Chairs**

**June 1, 2023  
Bill No. 230278**

Good afternoon, Councilmember Gilmore Richardson, Councilmember Johnson and members of the Joint Environment and Transportation and Public Utilities Committee. My name is Mike Carroll and I am Deputy Managing Director for the Office of Transportation and Infrastructure. I am here to testify regarding Resolution No. 230278, which authorizes City Council to hold hearings to investigate Philadelphia's emergency management practices and the City's overall preparedness when facing credible threats to our drinking water in the City of Philadelphia. With me today are:

- Randy Hayman, Water Commissioner
- Dr. Cheryl Bettigole, Health Commissioner
- Dominick Mireles, Director of Emergency Management.

## **Background**

At 12:27 a.m. on Saturday, March 25 the Water Department was notified by the Delaware Valley Early Warning System (EWS) that a synthetic latex product was spilled from the Trinseo facility into a tributary of the Delaware River in, Bucks County, 9 miles north of the Baxter Drinking Water Treatment Plant. The spill had occurred roughly an hour earlier just before midnight on Friday. Throughout the ensuing events, our top priorities were to avoid potential risks to the health of the public and to ensure that we provided timely and accurate information to Philadelphians in a transparent manner.

From Saturday morning through Tuesday, March 28th staff from the Philadelphia Water Department (PWD), the Office of Emergency Management (OEM), and the rest of the Administration worked around the clock to understand, communicate and respond to this event. Ultimately we managed to avoid any potential risks to public health. That achievement should not be minimized even while we learn lessons from that response.

Three areas of concern are most germane. The level and nature of communication on Saturday March 25<sup>th</sup> and Sunday March 26<sup>th</sup>; the City's planning and preparedness to sustain emergency water distribution; and the requirements for PWD to ensure the resiliency of the drinking water system.

## **Decision and Communications Timeline**

The City has received inquiries related to the issuance of a mobile alert across the cellular phone network in the early afternoon of Sunday March 26<sup>th</sup>. Many residents received a text alert at roughly 1:00p.m. that they “could consider drinking bottled water” after 2:00p.m. that same day. To understand why that occurred, it is useful to break down the timeline of events based on which aspects of the response were most critical.

### **Saturday, March 25 – EWS Notification and Modelling**

The EWS is a web-based emergency communication system that provides PWD and other subscribers in the Delaware River watershed notification of events that could impact water quality to help us protect our drinking water. Simply put, the EWS worked. Coupled with vigorous testing, it operated exactly as it was designed, providing advanced warning and the necessary spill modeling capabilities to help PWD navigate a serious water quality contamination event on the Delaware River.

Since EWS notifications arise roughly every two months and different events require different responses, the staff’s first course of action is to define the nature of the event and determine if there is an established response. Not every event rises to the same level of concern as the Trinseo spill. Every event requires balancing caution with the risk of creating panic and that balance always evolves over time as better information becomes available. It would cause useless concern but eventually be ignored by the public if PWD issued an alert every two months without taking time to develop clear information. In the case of the Trinseo spill, the evaluative process took all of Saturday March 25<sup>th</sup> to complete and in fact the administration began sharing information to put the public on notice that evening.

During the initial assessment, precise information on the nature of the health hazards related to the spill was not readily available. What was established was that the material was fully soluble and present from the surface to the bottom of the river. Therefore, it could not be contained and if the intake at the Baxter Treatment Plant (Baxter), which is located along the Delaware River, was left open the material would enter the water treatment system.

As a result, the decision was made to close the water intake at Baxter and adjust pumping into the water distribution system shortly after the first EWS notification. Given that the Delaware River is tidal, the spill had the potential to be pushed upstream and downstream of the PWD intake multiple times a day following the spill. Therefore, all decisions to open and close the intake in the days following the spill needed to be based on EWS modeling of the tidal effects and other factors affecting water flow.

On Saturday morning, EWS modeling indicated that the chemical plume would reach the Baxter intake around 6:00 a.m. and might remain in front of the intake for over 48 hours. These facts presented a dilemma because the water in storage could not feasibly last that long and allowing water levels to drop too low would permanently damage treatment facilities and place the Philadelphia Fire Department in a position to have inadequate water supplies for their operations.

To address this dilemma, PWD opted to open the intake from 1:55 a.m. until 4:59 a.m. to maximize water on hand and develop a water sampling and analysis plan to ensure drinking

water safety. Also, no information was available on whether and what would constitute an unacceptable risk. At that point a crucial constraint was that information on how to collect and test the key contaminants was limited. It took until 2:30 p.m. on Saturday for the Pennsylvania Department of Environmental Protection (PA DEP), to fully identify the contaminants and for boiling water to be ruled out as a means of treatment.

At 4:00 p.m, communications leads from the Mayor's Office, PDPH, PWD, and OEM convened. By 5:00 p.m. operations were modified to conserve water to buy time to obtain better facts. At 6:00 p.m. a message was developed, and this was shared on the PWD website.

At that time, clear facts did not exist on what to tell the public to do. Specifically, as of 6:00 p.m. on Saturday March 26th, the concentration of the contamination, the results of samples taken in the morning, the actual risks to public health, the effectiveness of normal water treatment, the supply of water in storage, and the risk of facility damage due to modified operation were all unknown. Nonetheless a press briefing was scheduled in order to alert the public to a potential threat.

At 7:30 p.m. test results came back favorably so at the 9:30 p.m. Saturday press briefing it was possible to tell the public that the water at their taps was safe and to ask the public to take measures to conserve water which would help buy time to develop more information and further options.

At this point a key fact is that the normal opening of the intake for the Saturday afternoon tide had been skipped. This decision was based on data provided via the EWS model on the expected migration of the spill. As a result, Baxter was operating at critically low levels through the plant. By 11:00 pm., PWD had enough information to determine that water intake at the next high tide was necessary to assure the plant could provide water to its service area for all essential services, such as fire protection. A key lesson to note here is that was the first point in time when it should have been clear our conservative estimates of the water processing rates meant that water would again reach critical levels after 2:00 p.m. the following day.

So, 11:00 p.m. on Saturday evening was our first opportunity to intensify public communication and perhaps to advise the public of the option to consume bottled water. Of course: 1) we hoped our recommendation to conserve water would be effective 2) we did not know how widely our web-based outreach and press briefing would be covered by the weekend nightly news broadcasts, and 3) we did not know if a text alert simply would have caused panic overnight. **Nonetheless we recognize a more thorough approach might have minimized public alarm.**

### **Sunday, March 26 -- Intake Management and Public Messaging**

The river water intake was opened in the early hours of Sunday, March 26 and closed at 6:13 a.m. This was done to maintain minimum levels of water in the system to avoid any damage to our equipment to continue supplying water for various needs including fire safety. A helicopter was deployed on early Sunday morning and showed the plume was no longer visible on the surface of the river. United States Coast Guard (USCG)/ Environmental Protection Agency (EPA) conducted sampling on the river and confirmed dissipation of the spill, but noted small

pockets of material observed along shoreline locations on the Pennsylvania side of the Delaware River. The plume was not observed at Baxter's intake at any point during the event as a result of tidal changes and other hydrologic factors such as mixing and weather conditions.

Interagency meetings were held starting in the early morning to discuss public messaging and as planned the previous night, the City's Emergency Operations Center was activated at 9:00 a.m. on Sunday, March 26.

At 10:00 a.m., a press briefing was held to share with the public that the water intake was opened for a period, that key contaminants had not been found in the system, and that no risk was expected before 2 p.m. on Sunday, March 26.

The following message was finalized and issued via a press release, blog post, and social media. *"Nonetheless, because we cannot be 100 percent sure that there won't be traces of these chemicals in the tap water throughout the afternoon, we want the public to be aware so that people can consider switching to bottled water to further minimize any risk. Therefore, we are notifying the public in the customer service area that they may wish not to drink or cook with tap water. We will update this information later this afternoon."*

Late on Sunday morning, an evaluation of the public awareness indicated that social media, the press briefing, and our web-based content were still not registering with the public. As a result, the decision was made to broaden notification. Therefore, OEM initiated a mobile alert. This took roughly an hour to implement and unfortunately it took until around 12:55 p.m. on Sunday, March 26<sup>th</sup> for the public to receive the suggestion to consider consuming bottled water after 2:00 p.m. that same day.

By mid-afternoon, PWD observed that the early Sunday morning intake opening was helping the Baxter plant to begin recovering, with in-plant storage starting to increase. In addition, PWD received results of the early Sunday morning water sampling, indicating non-detection of chemicals of concern.

Fortunately, this allowed PWD to update its messaging stating that water from the Baxter Drinking Water Treatment Plant would remain safe to drink and use at least through 11:59 p.m. on Monday, March 27. The statement went on to say that there was no need to buy bottled water at this time and that customers could fill bottles or pitchers with tap water with no risk. A press briefing was held at 5:15 p.m. to relay this information, followed by digital updates and mobile alerts.

The City began translation of messages as soon as they were made available in English. PWD's 24-hour customer service line always has Spanish-speaking agents and offers translation in multiple languages through the language line translator. PWD later updated its call center line to announce translations in Spanish, French, Pashto, Khmer, Swahili, and Portuguese were available.

Additionally, several communication materials related to the chemical spill were translated into multiple languages including Spanish, Chinese, Korean, Polish, Vietnamese, Russian, and Ukrainian.

### **Monday, March 27 – Event Management**

The river water intake was again opened in the early hours of Monday, March 27. PWD staff monitoring at the river and raw water basin observed a white material in the water just before 3:30 a.m., at which time the intake was closed. Water samples containing the material were collected for analysis.

Just before 5:30 a.m., the white material was no longer observed in the water and the Baxter intake was partially reopened to assure the plant would be capable of providing water to its service area and to protect critical equipment. Operations were modified to conserve water. The intake was closed at 10:23 a.m.

At 9:00 a.m., PWD received confirmation that water samples taken by USCG on March 26<sup>th</sup> did not detect key contaminants related to the spill. By early afternoon, water sampling results from earlier in the morning indicated that the white material was biological and inorganic in nature, not polymer based. Therefore, it was confirmed this material was not related to the chemical spill.

The intake was reopened shortly after 3:00 p.m. and closed at 7:30 p.m. A press briefing with Spanish and ASL interpretation was held at 5:00 p.m. to share that water from Baxter would remain safe to drink and use at least through 3:30 p.m. on Tuesday, March 28. Mobile and social media alerts followed in English and Spanish. A toolkit with the latest messaging in various languages was shared with City Council to distribute to their constituents, and with community members. Into the evening, with all tests throughout the incident coming back non-detect and Baxter plant operations recovering, PWD discussed adjusting the sampling plan and established a 48-hour timeline from river water intake to treated water in the distribution system.

### **Tuesday, March 28 – Ending the Event**

The Baxter river water intake was opened at high tide at 3:10 a.m. on Tuesday, March 28<sup>th</sup> and closed at 8:08 a.m. At 6:33 a.m., PWD was informed that water sample results from the prior afternoon were non-detect. Based on latest water sample results and updated treatment timeline, at 7:30 a.m. the City issued an updated press release, blog post and social media alerts informing residents that PWD was confident that tap water from the Baxter Drinking Water Treatment Plant would remain safe to drink and use at least through 11:59 p.m. Wednesday, March 29<sup>th</sup>. The update also noted that no contaminants related to the Bristol Township spill have ever been found in PWD's water system at any point. PWD's website was also updated in various languages.

In the late afternoon, results from water sampling from the prior day and 7:00 a.m. on March 28<sup>th</sup> were all non-detects. This information, along with hydrodynamic modeling that accounted for rainfall received in the Delaware River watershed on Monday, March 27<sup>th</sup> and Tuesday, March 28<sup>th</sup>, as well as the flow and tides, enabled the city to begin preparing messaging that drinking water from Baxter remains safe and that no further advisories would be needed.

At a 6:30 p.m. press briefing, the Mayor joined other city officials to declare that the city's drinking water is safe and would not be impacted by the Trinseo chemical spill in Bucks County.

Detailed information was shared about the EWS and the hydrodynamic modeling that was utilized to inform decision making regarding river water intake openings as well as estimate transport and dispersion of the spilled material. Furthermore, information was presented on the enhanced water monitoring program. Out of an abundance of caution and in coordination with the PA DEP, PWD announced that it would continue enhanced monitoring of the Delaware River and the Baxter Drinking Water Treatment Plant for spill-related material. At 7:30 p.m., the city's Emergency Operations Center was deactivated. Once again, all communication tools were deployed to inform residents that the threat had passed (flyers, ReadyPhila/WEA alerts, social media, blog post updates, press release).

### **Wednesday, March 29 – Tuesday, April 4 – Enhanced Testing**

Enhanced water monitoring continued through Tuesday, April 4<sup>th</sup> and all results were non-detects for spill-related material.

## **Water Distribution Plan**

One of the most critical actors in implementing a water distribution plan at the scale anticipated for the Trinseo incident would be the City of Philadelphia's Office of Emergency Management (OEM). Prior to the March event, OEM did already have an emergency water distribution strategy. The models for this type of activity include the response the City developed during the COVID shutdown to ensure all Philadelphians had access to food as well as more recently the City's work to support citywide vaccinations. At the point it became apparent that the distribution of an alternate water supply may be necessary, OEM put that strategy into effect.

The elements of the plan that followed included: activating the City's Executive Policy Group, information sharing and coordinating with key stakeholders like healthcare facilities, readying our own stocks of bottled drinking water, placing our vendors on standby to deliver more water, engaging mutual aid and the state for assistance, securing the facilities and locations and workforce necessary for distribution, and communicating updates to the public as available.

Note that an agency, such as the PWD, does not have the capacity to independently coordinate the delivery of alternate potable water sources for a large population in the event of a large-scale water outage or drinking water quality incident. There are multiple agencies and organizations that specialize in having the ability and capacity to meet drinking water needs in the face of many types of emergencies. Should there be a water quality incident impacting a large population of city residents, it is established that the PWD will cooperate with those city, state, and federal partners to provide support and assistance with delivering emergency water supplies, while continuing the critical work of maintaining and restoring the reliable delivery of clean, safe water to all the city's residents.

OEM already has experience with the public distribution of water and other critical goods. During the 2015 World Meeting of Families and the 2016 Democratic National Convention (DNC), OEM coordinated the distribution of bottled water to deployed personnel and the public at locations across South Philadelphia and Center City during the days-long events. During the

DNC, OEM managed the distribution of over 6,800 cases of water. More recently, during the COVID-19 food distribution and vaccination efforts, OEM played a key role in the identification, activation, and daily operation of the community vaccination sites, of the mass vaccination sites at the Convention Center and Esperanza, of the home vaccination program operated by the Philadelphia Fire Department, and in supporting the food distribution program. OEM not only had a blueprint for this emergency but had experience in analogous events.

Overall, the water distribution plan has more than two dozen stakeholders, including non-governmental as well as state and federal partners, and relies on four main strategies for providing equitable access to water. The first strategy is through commodity distributions sites – temporary locations to directly provide commodities to vehicle or foot traffic at sites in impacted areas. The second strategy is a mobile delivery program focused on bringing commodities directly to individuals with access and functional needs who may not be able to go and retrieve water themselves. The third strategy would deploy water to vulnerable residential settings that could either connect to an external water source or could distribute supplies to their residents. The fourth strategy would identify and make available unimpacted water sources in the City’s infrastructure such as water treatment plants, recreation facilities, and other locations that could serve as 24-hr fill locations for residents’ use.

These strategies were designed and informed by operational components to determine what was feasible as well as a Disability/Access and Functional Needs Working Group that met several times during the Trinseo response.

Despite having a strategy, experience, and the pieces being put into motion for this response, the magnitude of this potential emergency cannot be overstated. OEM assessed the need for over 500,000 cases of water to be distributed following the events of March 25<sup>th</sup>, as a worst-case scenario. That amount of water equates to 267 tractor-trailers full of bottled water. Further, approximately 828 cases of water are stockpiled in any fashion by City departments. Using City stockpiles, mutual aid, and industry partners, the city assesses that 19,260 cases of water could have been made available within 24 hours, well short of the potential 500,000 needed. This is enough water for a 1-day supply for approximately 57,780 people.

Activating to an emergency of this scale will take time. That is why it is so critical for residents and the managers of essential residential facilities to have a plan to be self-sufficient for three days, a national recommendation. OEM has been sharing this preparedness message based on guidance from the Federal Emergency Management Agency (FEMA) for years on their website and social media, through ReadyHome preparedness presentations, and at community events.

We are absolutely thrilled about the current focus on emergency preparedness. We know that too often this topic is an afterthought, like insurance, that is not seriously considered until it is needed – when it is too late. We look forward to continuing the conversation about our shared responsibility in creating a culture of preparedness for a ready and resilient Philadelphia. As the administration continues to refine its plans, we will take the opportunity to evaluate ways to amplify the message that every household and facility needs to have a plan for a 3-day supply of potable water. While we hope that the focus on emergency preparedness resulting from this

event will result in more people keeping an emergency supply kit on hand, we also recognize that we will need to continue to plan for those who need immediate access to a water supply.

## **Ensuring Resiliency**

While ensuring the resiliency of our drinking water system requires learning from the events of this past March and refining our water distribution plans it also means we must invest in the infrastructure that increases the redundancy of our system.

We are lucky in Philadelphia to have two separate watersheds we draw drinking water from but a major constraint on our response resulted from the fact that most of the City east of the Schuylkill River relies on the Baxter Water Treatment Plant for some or all of its water. When it is possible to distribute water across the whole city from any one of our three plants it would also be possible to fully isolate any plant at risk while ensuring that every tap will have access to water from the unaffected parts of our system.

A second major takeaway is that our success in this event resulted largely in the dedication of staff and the resources available to manage water treatment operations. Accounting for growing maintenance needs, inflationary pressures and staff retention and succession, ensuring the PWD has adequate operating resources and the rates necessary to fund these could not be clearer than they are now. While grants, loans and other one-time measures can have a benefit for capital investments, stable operating funding is essential to protect the public.

## **Conclusion**

Overall, the response to the Trinseo chemical spill was successful in protecting the public from any risk of exposure to contamination. The experience gained will be useful to improve our efforts and to set public expectations on how the City will react in the future. Nonetheless, we recognize more effort will be needed to coordinate operational decisions with public messaging, to ensure timely translation and ADA compliant communication, to refine our Water Distribution planning and to educate the public about everyone's responsibility to maintain their own three day supply of potable water. We are committed to that work.

Thank you, and we are available for any questions that you may have.