EPA
United States
Environmental Protection
Agency

EAST BASIN ROAD GROUNDWATER
COMMUNITY UPDATE
NEW CASTLE, DE / EPA REGION 3

SEPTEMBER 2022

EPA proposes Site to NPL

The U.S. Environmental Protection Agency (EPA), in collaboration with the Delaware Department of Natural Resources and Environmental Control (DNREC), completed its site inspection of the East Basin Road Groundwater Site. The inspection concluded that the site requires further investigation and may require long-term clean-up.

EPA will propose the site to the National Priorities List (NPL) on September 9, 2022.

The NPL is a list of the most serious identified sites that require long-term investigation and clean-up under EPA's Superfund program. When a site is proposed to the NPL, EPA publishes a rule in Federal Register about its intention and notifies the community. EPA is holding a 60-day comment period that allows community members to comment on the proposal. The State of Delaware has concurred on the proposal.

EPA would like to hear from you!

EPA will be holding a 60-day public comment period from September 9 to November 8, 2022.

Comments can be submitted one of two ways:

Online: http://www.regulations.gov
Search for "EPA-HQ-OLEM-2022-0679

Mail: U.S. Environmental Protection Agency
EPA Docket Center, Superfund Docket
Docekt # EPA-HQ-OLEM-2022-0679
Mailcode 28221T
1200 Pennsylvania Avenue NW
Washington, DC 2046

East Basin Road Groundwater Site-Map provided by DNREC

Next Steps

Following the comment period, EPA will respond to public comments received. If the site still qualifies for cleanup under Superfund, the site is formally listed on the NPL by final rule, to be published in the Federal Register in the Spring 2023. The site would then become a Superfund Site and be eligible for federal financial assistance and long-term cleanup. EPA will continue to keep the New Castle community informed throughout the NPL proposal process.

Additional Resources

For more information about the site, visit the website or scan QR Code with your smartphone. please open the camera app on your smartphone. Move your camera so the QR code is in the frame and able to be scanned. Hold the device steady until the camera app can read the code: http://www.epa.gov/superfund/eastbasin

Questions? Please contact us!

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What Has Been Done at the Site to Date?

EPA and DNREC completed a preliminary assessment, site inspection, and an expanded site inspection of widespread groundwater contamination in New Castle, DE. The groundwater contamination is located in the vicinity of the New Castle County Airport, which includes the New Castle Air National Guard Base and the Duncan Readiness Center and Army Aviation Support facilities which both lease land at the airport. The State of Delaware requested EPA list the site on the NPL due to the resources available under EPA's Superfund program, which includes the ability to be able to identify responsible parties and determine the source of groundwater contamination.

Several public drinking water wells have been impacted by per-and polyfluoroalkyl substances (PFAS) and volatile organic compound (VOC) contamination. The local water providers operate treatment systems that provide water to their customers that meet all State and Federal drinking water standards for regulated and unregulated contaminants. The provider's water treatment systems have been shown to be effective in reducing the unregulated PFAS contamination concentrations.

The treated water meets the proposed State of Delaware Department of Health and Social Services, Division of Public Health drinking water maximum contaminant level (MCL) for the PFAS compounds PFOA and PFOS.

Site Background

The East Basin Road Groundwater Site is a groundwater plume(s) that is impacting 11 public wells within multiple wellhead protection areas owned by Artesian Water Company and the New Castle Municipal Services Commission. The wells serve approximately 209,000 people and are located within the 5,000-acre area-wide investigation.

The site investigation area included facilities in and around the Wilmington-New Castle Airport, six industrial parks, three fire training areas, two carpet warehouses, one fire station and two commercial districts.

Please Join Us for a Public Information Session About the Proposal

In-Person
Tuesday, October 4
6:00pm to 8:00pm
Route 9 Library & Innovation Center
3022 New Castle Ave
New Castle, DE 19720

Virtual
Thursday, October 6
6:00pm to 8:00pm

To join click the following meeting link:
https://usepa.zoomgov.com/j/1616572991
Meeting ID: 161 657 2991

Or Dial in:
Dial by your location
+1 669 254 5252 US (San Jose)
+1 646 828 7666 US (New York)
+1 669 216 1590 US (San Jose)
+1 551 285 1373 US
Meeting ID: 161 657 2991

Additional Resources

For more information about EPA's Superfund Program: www.epa.gov/superfund

This is Superfund: A Community Guide to EPA's Superfund Program:
https://semspub.epa.gov/src/document/11/175197

¿Preguntas? Contáctenos

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PFAS Exposure Assessment Community Summary

New Castle County, Delaware near the New Castle Air National Guard Base

INFORMATION TO PROTECT OUR COMMUNITIES

The Centers for Disease Control and Prevention (CDC) and the Agency for Toxic Substances and Disease Registry (ATSDR) conducted exposure assessments (EAs) in communities that were known to have PFAS in their drinking water and are near current or former military bases. The EAs provide information to communities about levels of PFAS in their bodies and can provide guidance to help people reduce or stop exposure. This document summarizes the exposure assessment results from in and around the City of New Castle in New Castle County, Delaware, near New Castle Air National Guard Base (the Base). The full exposure assessment report is available at https://www.atsdr.cdc.gov/pfas/activities/assessments/sites/new-castle-county-de.html.

Why did we select the New Castle County EA site?

When selecting EA sites, ATSDR considered the extent of PFOA and PFOS contamination in drinking water supplies, the duration over which exposure may have occurred, and the number of potentially affected residents. The New Castle County EA site was one of several sites nationwide identified with PFAS drinking water contamination from use of products such as aqueous film forming foam (AFFF).

The Base used AFFF containing PFAS for its firefighter training in the past. Over time, the PFAS from the AFFF entered the ground, moved into the groundwater to offsite locations, and affected nearby municipal wells. In 2014, two drinking water systems serving the New Castle area, Artesian Water and Municipal Services Commission (MSC) of the City of New Castle, were found to contain PFAS levels exceeding the Environmental Protection Agency's (EPA) provisional health advisory (HA). Both water systems removed contaminated wells from service and upgraded their systems to reduce PFAS exposures. Both systems mitigated PFAS exposures below the provisional HA in 2014. In 2016, one additional well in Artesian's system was found to exceed the (lower) 2016 EPA HA. Artesian took additional action to remove that well from service and reduce concentrations of PFAS in drinking water below the EPA HA. Final mitigation was achieved by MSC in August 2014 and by Artesian in July 2016.

Based on the information ATSDR has reviewed, the Artesian and MSC public drinking water supplies currently meet or are below the EPA's 2016 HA for PFAS in drinking water. At this time, ATSDR does not recommend community members who get drinking water from the Artesian and MSC public water systems use alternative sources of water.

What are PFAS?

PFAS (or "per- and polyfluoroalkyl substances") are a family of man-made chemicals that have been used in industry and consumer products since the 1950s.

The vast majority of PFAS do not occur naturally but are widespread in the environment. Most PFAS (including PFOA, PFOS, PFHxS, and PFNA) are either very resistant to breaking down themselves or degrade into other PFAS that do not degrade further. Certain PFAS will therefore remain in the environment indefinitely. Some studies have shown that PFAS exposure may harm human health.

How was the testing conducted?

ATSDR invited randomly selected households to participate in the PFAS exposure assessment. To be eligible to participate, household residents must have (1) been served by the MSC drinking water system for at least 1 year before August 5, 2014, or by the Artesian Water system at least 1 year before July 18, 2016 (these residents have the greatest likelihood of past exposures to PFAS via the drinking water supplies), (2) been greater than three years old at the time of sample collection, and (3) not been anemic or have a bleeding disorder that would prevent giving a blood sample.

Measuring PFAS in the blood of people from randomly selected households allows us to estimate exposure from consumption of public drinking water for the entire community in the affected area, even those who were not tested.

In October 2019, ATSDR collected samples and other information from participants.

ATSDR analyzed data from **214** people, including children (203 adults and 11 children) from **134** households

Everyone completed a questionnaire

most people provided blood and urine samples.

The serum portion of the blood was analyzed for PFAS. ATSDR collected samples of tap water and dust from some homes.

ATSDR sent each participant their individual results in May 2020.

Key Takeaways

- Levels of some PFAS in blood (detailed below) in New Castle County EA site were as much as 9.8 times higher than national levels. Other PFAS measured in blood (PFUnA and MeFOSAA) were detected at low concentrations but could not be compared to national levels.
- Elevated blood levels may be linked with past drinking water contamination.
- Some demographic and lifestyle characteristics were linked with higher PFAS blood levels.
- All tap water samples collected during the EA in 2019 met the EPA's health advisory PFAS in drinking water.

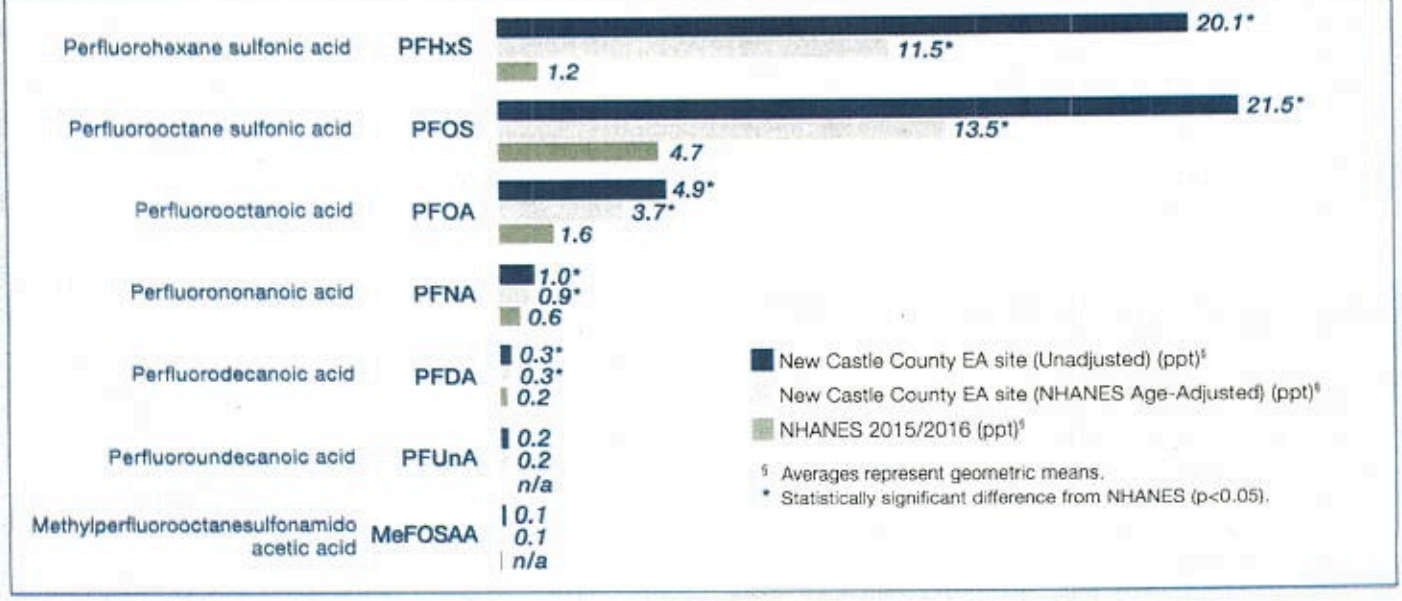
What did we learn about PFAS levels in blood?

Of the seven PFAS tested at the New Castle County EA site, at least one PFAS was detected in all participants. And all 7 PFAS were detected in more than 60% of the blood samples collected: PFHxS, PFOS, PFOA, PFNA, PFDA, PFUnA, and MeFOSAA.

Average blood levels of 5 PFAS (PFHxS, PFOS, PFOA, PFNA, and PFDA) in New Castle County EA participants were higher than average levels nationwide.

Since 1999, the National Health and Nutrition Examination Survey (NHANES) has measured PFAS levels in blood in the U.S. population, and PFAS levels are shown to be age dependent. In its analysis, ATSDR adjusted blood levels of EA participants at the New Castle County EA site for age to enable meaningful comparison to the NHANES dataset. After adjusting for the effects of age, PFHxS, PFOA, PFOS, PFNA and PFDA were all elevated compared to levels nationwide. Age-adjusted averages are more representative the New Castle County EA site community.

New Castle County EA site average PFAS blood levels compared to national averages[5]



What did other testing find at the New Castle County EA site?

Only one PFAS (PFBA) was detected in urine; it was detected at low concentrations.

All tap water samples collected during the EA in 2019 met the EPA's HA for PFAS in drinking water.

PFAS contamination in house dust was similar to that reported in other studies (with and without PFAS contamination) and likely contributed to PFAS levels in the blood.

What do these results mean for community members?

This PFAS EA provides evidence that past exposures to PFAS in drinking water have impacted the levels of some PFAS in people's bodies. PFAS are eliminated from the body over a long period of time. This allowed ATSDR to measure PFAS even though exposures through drinking water were mitigated, or lowered, years ago.

Although not everyone exposed to PFAS through drinking water in New Castle had the opportunity to participate, by including a random selection of households, the results help estimate exposure for all community members, even those who were not tested. This means that average PFAS levels reported in this assessment may be representative of levels among community members living in the sampling frame and who meet the eligibility criteria. PFAS found in a person's blood or urine means that exposure has occurred. The presence of PFAS in blood or urine does not tell us how, where, when, or for how long a person was exposed to PFAS. Exposure to PFAS does not mean adverse health effects will result, either now or in the future.

Although the exposure contribution from PFAS in drinking water at the New Castle County EA site has been mitigated, there are actions community members and city officials can take to further reduce exposures to PFAS and protect public health.

Based on the recent PFAS drinking water test results from Artesian Water and MSC water system, ATSDR does not recommend an alternate source of drinking water at this time.

What can community members do?

Become familiar with Consumer Confidence Reports Artesian Water, https://www.artesianwater.com/my-bills-services/water-quality-reports; MSC, https://newcastlemsc.delaware.gov/consumer-confidence-reports/ for information on water quality.

Nursing mothers should continue breastfeeding. Based on current science, the benefits of breastfeeding outweigh the potential risks for infants exposed to PFAS in breast milk.

When possible, eliminate or decrease potential exposure to PFAS in consumer products such as stain-resistant products, and food packaging materials. To learn more visit: https://www.fda.gov/food/chemical-contaminants-food/questions-and-answers-pfas-food

Pay attention to advisories about food consumption, such as local fish advisories.

Discuss any health concerns or symptoms with your health care provider. Share results of PFAS blood testing with your health care provider and make them aware of ATSDR resources for clinicians (https://www.atsdr.cdc.gov/pfas/resources/info-for-health-professionals.html). Follow the advice of your health care provider and the recommendations for checkups, vaccinations, and health screening tests.

At this time, ATSDR does not have plans to conduct additional blood testing for PFAS nor recommend PFAS exposure assessment participants get individually retested for PFAS in blood.

The biological half-lives of many of the PFAS measured in people's blood are long. PFHxS, in particular, has one of the longest half-lives–some estimates range in the decades. This means that PFAS blood levels are not expected to change significantly in the near-term, even if exposure stops. Additionally, it is unclear what an individual's PFAS test results mean in terms of possible health effects. For the general population, blood tests for PFAS are most useful when they are part of a scientific investigation or a health study like the exposure assessment. Test results tell you how much of each PFAS is in your blood, but it is unclear what the results mean in terms of possible health effects. In addition, blood testing for PFAS is not a routine test offered by most doctors or health departments. If you are concerned about the effects of PFAS on your health, talk to your health care provider and make them aware of ATSDR resources for clinicians (https://www.atsdr.cdc.gov/pfas/resources/info-for-health-professionals.html).

Elevated blood levels of PFHxS, PFOS, and PFOA in the New Castle County EA participants may be linked with past contamination of the drinking water systems.

Three PFAS (PFHxS, PFOS, and PFOA) were detected in the MSC system in 2009 and in the Artesian Water system in 2014. We do not know if PFAS contamination began earlier, because data are not available before 2009 for the MSC system and 2014 for the Artesian Water system.

In 2014, the MSC water supply system mitigated the contamination. The Artesian water supply system took similar action in 2014. In 2016, an additional well was found to be contaminated above the 2016 EPA HA so final mitigation in the Artesian system was not completed until 2016. PFAS have long half-lives in the human body. Therefore, even though drinking water exposures were reduced 3 to 5 years before the collection of EA blood samples, past drinking water exposures were a likely contributing factor to the EA participants' elevated blood PFAS levels.

Generally, participants who had elevated PFHxS blood levels also had elevated PFOS and PFOA blood levels. This suggests a common source of exposure, such as the drinking water supply. Other sources of exposure were not measured but could have contributed to blood PFAS concentrations of the EA participant

Additional observations:

Adults who lived in the MSC service area had higher blood levels than those in the Artesian Water service area.

The differences in participants' PFAS blood levels between the two water systems were consistent with the historic levels of PFAS in the drinking water, i.e., higher historical PFAS levels in MSC public water.

Long-time residents have higher PFHxS, PFOS, and PFOA blood levels

(for either MSC or Artesian users).

Adults who used at least one water filter or treatment device had lower PFHxS, PFOS, and PFOA blood levels compared to those who did not

(for either MSC or Artesian users).

ATSDR used statistical models to study relationships between various demographic and lifestyle characteristics of the tested residents. The models showed that, in general:

Males had 28% higher blood levels of PFOS than females.

Adults who reported a **history of kidney disease had 56% higher PFHxS blood levels** than those who did not report kidney disease.

LIMITED DATA

Adults who reported **cleaning their homes an average of 3+ times per week had 42% lower PFHxS and 34% lower PFOS blood levels** than adults who reported cleaning a few times per month or less.

What did we learn about exposure in children?

Most associations in children (<18 years) could not be evaluated because of the small number of child participants (n=11). However, blood levels of PFHxS and PFOS increased with self-reported water consumption levels at school. This finding should be interpreted with caution due to the small number of children who participated in this EA. The final report on all EA sites will include a more robust analysis of children

Follow the advice of your child's health care provider and the recommendations for well child checkups, vaccinations, and health screening tests. Consult https://health.gov/myhealthfinder to help identify those vaccinations and tests.

For additional information about environmental exposures and children's health, contact the Pediatric Environmental Health Specialty Units, a nationwide network of experts in reproductive and children's environmental health (https://www.pehsu.net/).

What can the Artesian Water and MSC water supply systems do?

Operators of the two impacted public water systems should continue to monitor concentrations of PFAS in drinking water delivered to the community near the New Castle County EA site to ensure that concentrations of PFAS remain below the EPA's HA for PFAS in drinking water.

Results of PFAS drinking water monitoring should continue to be shared with community members (Consumer Confidence Reports for Artesian Water, https://www.artesianwater.com/my-bills-services/water-quality-reports/; Consumer Confidence Reports for MSC, https://newcastlemsc.delaware.gov/consumer-confidence-reports/).

All treatment systems to remove PFAS from the drinking water in the Artesian Water and MSC systems should be maintained appropriately to ensure that PFAS concentrations remain below the EPA's HA.

What will we do next?

ATSDR will hold a meeting to discuss the results and is available to answer questions from the community at any time.

When all of the exposure assessments are complete, we will prepare a report analyzing the data across all sites.

We are also reaching out to doctors, nurses, and other health care providers in your area to provide PFAS information. PFAS clinician guidance and continuing medical education can be found at https://www.atsdr.cdc.gov/pfas/resources/clinical-guidance.html.

ATSDR is conducting a Multi-site PFAS health study. The study's findings will be shared with the community once they become available.

About ATSDR

The Agency for Toxic Substances and Disease Registry (ATSDR) is a federal public health agency of the U.S. Department of Health and Human Services. https://www.atsdr.cdc.gov/

For More Information

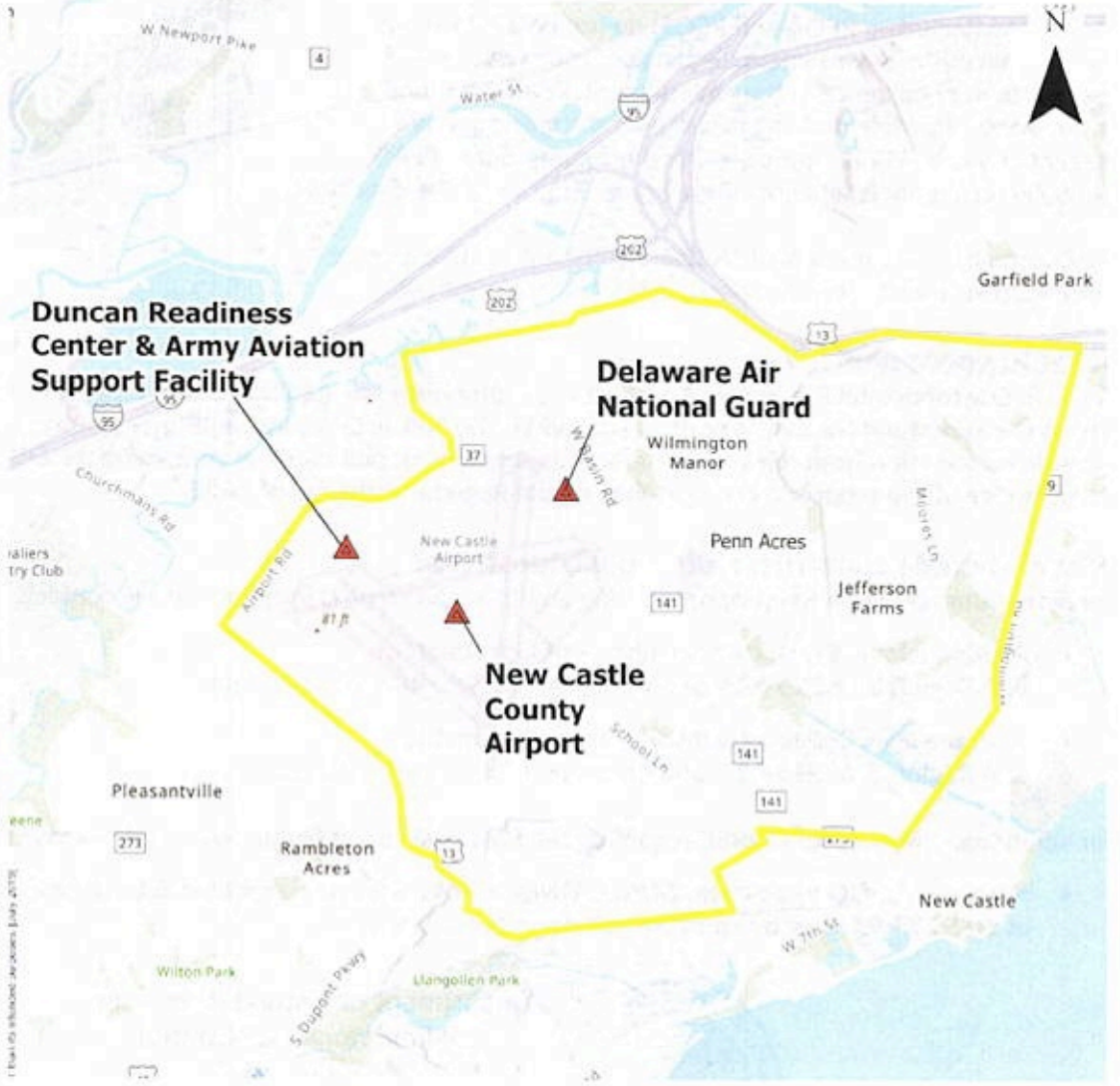
visit: https://www.atsdr.cdc.gov/
email: pfas@cdc.gov
call: 800-CDC-INFO (800-232-4636)

CDC ATSDR

National Center for Environmental Health
Agency for Toxic Substances and Disease Registry

East Basin Road Groundwater Site

What does the East Basin Road Groundwater site encompass?



Is the water safe to drink?

Groundwater is the main source of drinking water in the New Castle area. Artesian Water Company and the City of New Castle's Municipal Services Commission (MSC) are currently treating the public drinking water to remove contamination, including Volatile Organic Compounds (VOCs), perfluorooctanoic acid (PFOA), and perfluorooctane sulfonic acid (PFOS).

The most recent results for treated drinking water samples show the concentrations continue to meet federal and state drinking water standards, also known as maximum contaminant levels (MCLs), for all other compounds. The finished drinking water does not exceed the proposed state MCLs for PFOA and PFOS or current HSCA screening levels.

What are PFAS and what are the impacts?

According to the Agency for Toxic Substances and Disease Registry, per- and polyfluoroalkyl substances (PFAS) are man-made chemicals that have been used in industry and consumer products worldwide since the 1950s. They have been used to make nonstick cookware, water-repellent clothing, stain resistant fabrics and carpets, some cosmetics, some firefighting foams, and products that resist grease, water, and oil.

Most PFAS (including PFOA and PFOS) do not break down, so they remain in the environment. Because of their widespread use and their persistence in the environment, PFAS are found in the blood of people and animals all over the world and are present at low levels in a variety of food products. Some PFAS can build up in people and animals with repeated exposure over time.

For information about the health effects associated with exposure to PFAS, please visit https://atsdr.cdc.gov/pfas/health-effects.

What happens next?

The U.S. Environmental Protection Agency (EPA) is proposing the addition of the East Basin Road Groundwater Site to the Superfund National Priorities List (NPL). The NPL is EPA's list of priority sites requiring evaluation for possible remediation from releases of hazardous substances, pollutants or contaminants. EPA intends to provide public notice of the proposed listing in the Federal Register in the fall of 2022.

Whom should I contact for additional questions?

For more information on the proposed listing and EPA's Superfund Program, please contact:

- Akudo Ejelonu, Community Involvement Coordinator, EPA Region 3, at 215-814-5535 or by email: ejelonu.akudo@epa.gov
- John Brakeall, Community Involvement Coordinator, EPA Region 3, at 215-814-5537 or by email: brakeall.john@epa.gov

For additional questions to DNREC regarding the East Basin Road Groundwater Site, please contact:

- Katera Moore, Ombudsman, DNREC Division of Waste and Hazardous Substances at 302-739-9473 or by email: katera.moore@delaware.gov

Department of Natural Resources
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89 Kings Hwy
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dnrec.delaware.gov

East Basin Road Groundwater Site

Fact Sheet

The U.S. Environmental Protection Agency (EPA) is proposing the addition of the East Basin Road Groundwater Site to the Superfund National Priorities List (NPL). The NPL is EPA's list of priority sites requiring evaluation for possible remediation from releases of hazardous substances, pollutants or contaminants. EPA intends to provide public notice of the proposed listing in the Federal Register in the fall of 2022.

The proposed listing of the East Basin Road Groundwater Site is due to the identification of groundwater plumes containing volatile organic compounds (VOCs) and metals impacting public drinking water supply wells in the City of New Castle and surrounding area. Per- and polyfluoroalkyl substances (PFAS) have also been found in groundwater and public supply wells, and PFAS chemicals perfluorooctanoic acid (PFOA) and perfluorooctane sulfonic acid (PFOS) are regulated hazardous substances under Delaware's Hazardous Substance Cleanup Act (HSCA).

Drinking Water Meets Standards

Public drinking water provided by Artesian Water Company (Artesian) and the City of New Castle's Municipal Services Commission (MSC) is treated to remove contamination, including VOCs and the PFAS compounds, PFOA and PFOS. The finished drinking water meets all applicable federal and state Safe Drinking Water Act standards, also known as Maximum Contaminant Levels (MCLs). The finished drinking water does not exceed the proposed State of Delaware MCLs for PFOA and PFOS*.

The National Priorities List (NPL)

An NPL listing makes a site eligible for remedial action financed under the federal Superfund program. An NPL listing for the East Basin Road Groundwater Site will allow EPA to use Superfund authority and resources to further investigate and remediate the contamination and protect human health and the environment in New Castle.

Background

In 2013 and 2014, in association with the federal Third Unregulated Contaminant Monitoring Rule (UCMR 3), drinking water samples were collected from multiple public supply wells in New Castle. Concentrations of PFOA and PFOS exceeded the EPA provisional health advisory levels (HALs) of 200 nanograms per liter (ng/L) and 400 ng/L, respectively, in five of the public supply wells operated by Artesian and MSC. In 2014, these wells were temporarily removed from service and/or treatment was installed to ensure the water met the drinking water standard. In 2016, EPA issued a lifetime HAL of 70 ng/L in drinking water for PFOA, PFOS, and combined PFOA and PFOS when both compounds are detected. In June 2022, EPA issued interim, updated HALs for PFOA and PFOS of 0.004 ng/L and 0.02 ng/L, respectively.

*Proposed State of Delaware MCLs are 21 ng/L for PFOA, 14 ng/L for PFOS, and 17 ng/L for combined PFOA and PFOS.

According to EPA, eleven public wells in the area surrounding the Site are now impacted by PFOA and/or PFOS at concentrations above EPA's HAL. At least one public supply well is also impacted by VOCs, including tetrachloroethene (PCE) above the state and federal MCL. VOCs have been detected in the well for several decades.

Current Conditions

Drinking water supplied by Artesian and MSC meet federal and state Safe Drinking Water Act Standards. The finished drinking water does not exceed the proposed state of Delaware MCLs of 21 ng/L for PFOA, 14 ng/L for PFOS, or 17 ng/L for combined PFOA and PFOS or current HSCA screening levels.

In cooperation with EPA, DNREC has conducted investigations in the New Castle area since March 2015. During the investigation, groundwater from site monitoring wells was found to be impacted with PFOA, PFOS, PCE, trichloroethene (TCE), benzene, methyl tert-butyl ether (MTBE), and other contaminants. Most recently, DNREC and EPA concluded that further investigation was needed.

To address the impacted groundwater, DNREC continues to work with US EPA to conduct further investigations, including supporting listing the site on the National Priorities list. This listing will provide additional technical and financial resources to this site ensuring it is protective of human health and the environment.

More Information

To find out more about what the State of Delaware is doing to address PFOS and PFOA contamination throughout the state, visit de.gov/pfas.

Contact Information

For more information on the proposed NPL listing for the East Basin Road Groundwater Site and EPA's Superfund Program, contact:

- Akudo Ejelonu, EPA Community Involvement Coordinator, 215-814-5535 or email ejelonu.akudo@epa.gov
- John Brakeall, EPA Community Involvement Coordinator, at 215-814-5537 or brakeall.john@epa.gov

For additional information or questions regarding DNREC's Investigations, contact:

- Qazi Salahuddin, DNREC Remediation Section Administrator, 302-395-2600, or email qazi.salahuddin@delaware.gov
- Stephanie Gordon, DNREC Remediation Section Project Manager, 302-395-2600, or email stephanie.gordon@delaware.gov
- Katera Moore, DNREC Ombudsman, 302-739-9473 or email katera.moore@delaware.gov

Department of Natural Resources
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Dover, DE 19901
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East Basin Road Groundwater Site

FAQs

Where is the site located?

The East Basin Road Groundwater Site is located in New Castle County in New Castle, Delaware. The site is an approximately seven-square mile area surrounding New Castle's public wells.

Is the water safe to drink?

Artesian Water Company and the City of New Castle's Municipal Services Commission (MSC) are currently treating the public drinking water to remove contamination, including Volatile Organic Compounds (VOCs), or human-made chemicals used in the manufacture of paints, pharmaceuticals and refrigerants, such as industrial solvents like tetrachloroethene (PCE). Treatment is also underway to address two chemical compounds, perfluorooctanoic acid (PFOA), and perfluorooctane sulfonic acid (PFOS), widely used in grease-resistant food packaging, water-resistant clothing, nonstick cookware and many other everyday products. The finished drinking water – after treatment – meets all applicable federal and state Safe Drinking Water Act standards, also known as Maximum Contaminant Levels (MCLs), for all other compounds. The finished drinking water does not exceed the proposed State of Delaware MCLs for PFOA and PFOS or current Hazardous Substance Cleanup Act (HSCA) screening levels.

What were the levels of contamination detected in the samples from the public wells?

The most recent sampling results for the untreated groundwater samples from the Expanded Site Inspection in November 2021 indicate PCE was detected at 7.5 micrograms per liter (ug/L), which is above the state MCL of 1 ug/L and the federal MCL of 5 ug/L.

In untreated groundwater from the public wells, the maximum concentration of PFOA was 269 nanograms per liter (ng/L) and PFOS was 3240 ng/L, which are above the interim EPA health advisory levels of 0.004 ng/L and 0.02 ng/L respectively and above the proposed state MCLs of 21 ng/L for PFOA, 14 ng/L for PFOS, or 17 ng/L for combined PFOA and PFOS.

The most recent results **for treated drinking water samples show the concentrations continue to meet federal and state drinking water standards,** also known as MCLs, for all other compounds. The finished drinking water does not exceed the proposed state MCLs for PFOA and PFOS or current HSCA screening levels.

What are the potential sources of the contamination?

Potential sources of contamination near the wells include the following sites listed below, where historical operations may have included the use of compounds which may have contained VOCs, PFOA, and/or PFOS. Additional sources of contamination in groundwater may also be identified in the future as a result of EPA's U.S. Environmental Protection Agency (EPA)'s investigation.

- Delaware Air National Guard Base (DE-1003)
- New Castle County Airport (DE-0357)
- Duncan Readiness Center and Army Aviation Support Facility (DE-1753)

How many people are served by the New Castle water system?

Groundwater is the main source of drinking water in the New Castle area, which has a population of more than 5,000 people. However, the larger population served by the public wells (including these wells) in the New Castle area may include approximately 215,000 homes and businesses.

What are PFAS and where did they come from?

PFOA and PFOS are part of the group of synthetic chemicals known as per- and polyfluoroalkyl substances (PFAS). These chemicals were used in manufacturing and industrial operations since the 1940's. PFAS chemicals were first developed for use in manufacturing adhesives and nonstick surfaces. They have since been used in firefighting foams and other products with stain-, water-, oil- and grease repellent properties such as clothing, automobile finishes, upholstered goods, food-wrappers, and carpeting. They are persistent compounds and do not readily break down in the environment. They also tend to become concentrated inside the bodies of living things, a process scientists call bioaccumulation, which means the amount of PFAS builds up over time in the blood and organs. These chemicals have become widely distributed in the environment and have been detected in people and wildlife across the globe.

For more information about PFAS, visit https://de.gov/pfas and https://www.epa.gov/pfas.

What adverse health effects may be associated with exposure to PFAS?

In laboratory studies of animals given large doses of PFOS and PFOA, results indicate that the substances can cause developmental, reproductive, and other adverse health effects. In humans, while the research is still ongoing, the most consistent findings show elevated blood serum total cholesterol levels among exposed populations and the potential for low infant birth weights and changes to the body's immune response capabilities.

For information about the health effects associated with exposure to PFAS, please visit https://atsdr.cdc.gov/pfas/health-effects.

What is the NPL and how does the listing process work?

The Superfund National Priorities List (NPL) process provides a means of identifying contaminated sites (and the associated potential responsible parties) that warrant remedial action or cleanup under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and the Superfund Amendments and Reauthorization Act (SARA). Cleanups at NPL sites are managed and financed under the Federal Superfund program by EPA and any potentially responsible parties.

The EPA ranks sites for further investigation using a Hazard Ranking System (HRS) screening. The East Basin Road Groundwater Site exceeded the score required for potential listing on the NPL primarily because a public drinking water source was impacted by contaminants. EPA recommended proposing the site to the NPL. After a site such as this is identified, there is a 60-day public comment period on the proposed listing. If the comments do not affect EPA's scoring of the site using the HRS, the site is then eligible for listing on the NPL.

- EPA intends to propose the East Basin Road Groundwater Site to the NPL in the Federal Register in the fall of 2022. For more information on the NPL listing process, please visit: https://www.epa.gov/superfund/superfund-national-priorities-list-npl

Whom should I contact for additional questions?

For more information on the proposed listing and EPA's Superfund Program, please contact:

- Akudo Ejelonu, Community Involvement Coordinator,
  EPA Region 3, at 215-814-5535 or by email: ejelonu.akudo@epa.gov

- John Brakeall, Community Involvement Coordinator,
  EPA Region 3, at 215-814-5537 or by email: brakeall.john@epa.gov

For additional questions to DNREC regarding the East Basin Road Groundwater Site, please contact:

- Stephanie Gordon, Project Manager, DNREC Remediation Section at 302-395-2600,
  or by email: stephanie.gordon@delaware.gov

- Katera Moore, Ombudsman, DNREC Strategic Services Section at 302-739-9473
  or by email: katera.moore@delaware.gov

- Qazi Salahuddin, Program Administrator, DNREC Remediation Section at 302-395-2600,
  or by email: qazi.salahuddin@delaware.gov

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