

### Why Is the Navy Sampling Drinking Water Wells Nationwide?

The Navy is currently addressing exposure to PFOA and PFOS in drinking water near NAS Whiting Field and its outlying landing fields.

- In 2016, the EPA established a lifetime drinking water health advisory (70 ppt) for two PFAS (PFOA and PFOS).
- The Navy issued a policy to address PFOA and PFOS in drinking water.
- The main historical source of PFOA and PFOS was firefighting foam.
  - No longer used for training.
  - Currently only used in lifesaving emergency measures.
- The Navy is investigating all of our installations to identify PFOA and PFOS exposure.



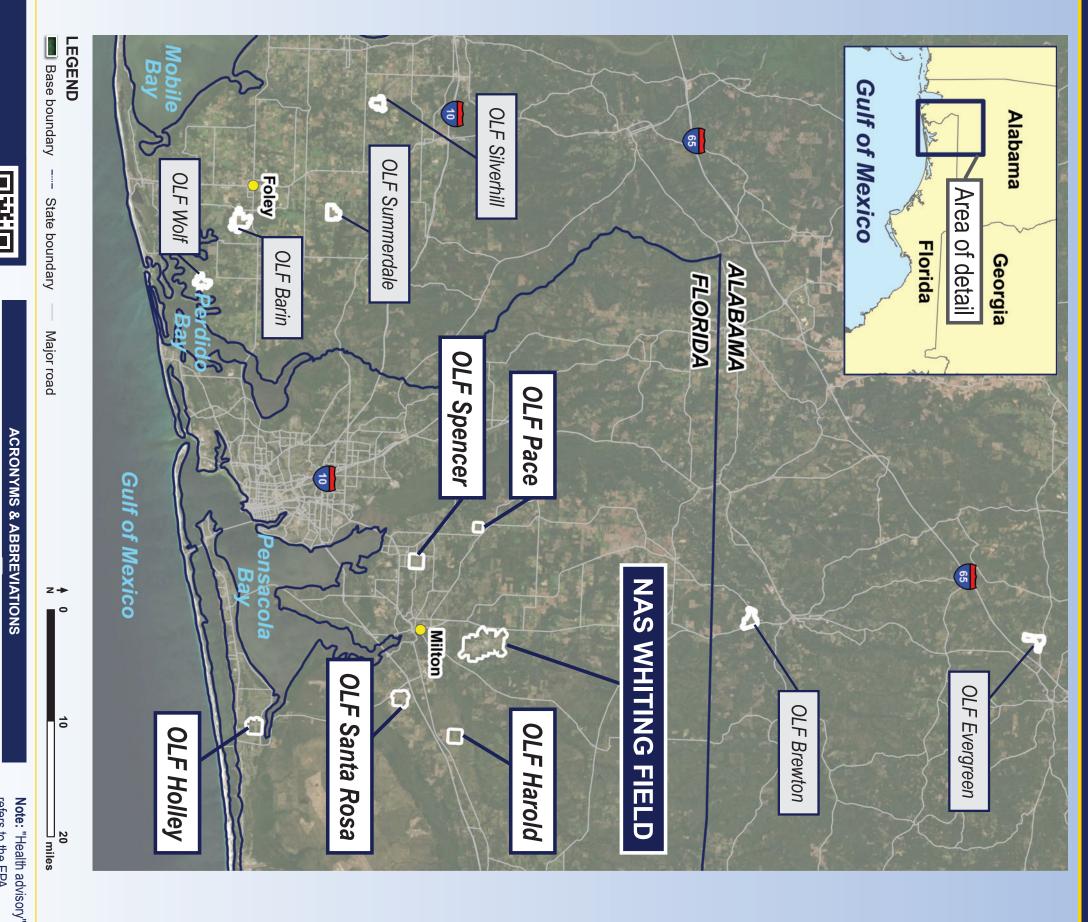


#### ACRONYMS & ABBREVIATIONS

EPA U.S. Environmental Protection Agency
 NAS Naval Air Station
 OLF Outlying Landing Field
 PFAS per- and polyfluoroalkyl substances

PFOA perfluorooctanoic acid
PFOS perfluorooctane sulfonate
ppt part(s) per trillion





FOR MORE INFORMATION visit <a href="http://go.usa.gov/xAEQF">http://go.usa.gov/xAEQF</a> or scan the QR code →

EPA NAS OLF PFAS

Naval Air Station
Outlying Landing Field
per- and polyfluoroalkyl substances

U.S. Environmental Protection Agency

PFOA PFOS

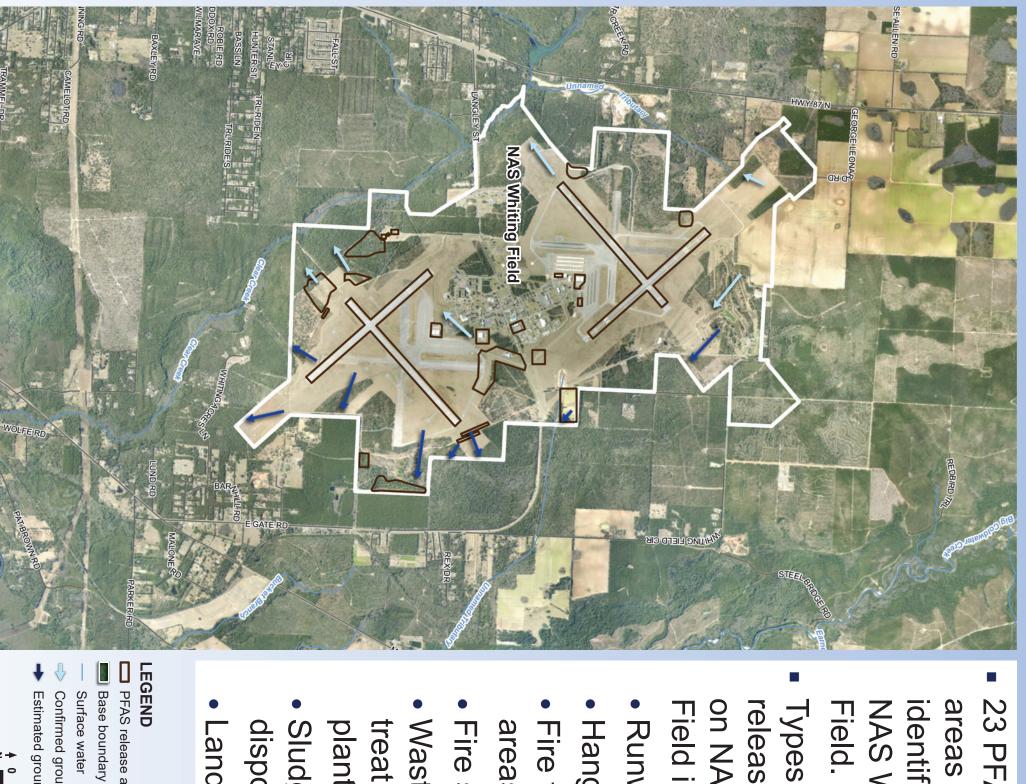
perfluorooctanoic acid perfluorooctane sulfonate

part(s) per trillion

health advisory for PFOA and/or PFOS

refers to the EPA lifetime drinking water

### **NAS Whiting** n-Base PFAS Field Release Areas



- Field. identified on areas have been 23 PFAS release NAS Whiting
- on NAS Whiting release areas Field include: Types of PFAS
- Runways
- Hangars
- areas Fire training
- Fire stations
- plants treatment Wastewater
- Sludge disposal
- Landfills

#### LEGEND

- PFAS release area
- Surface water
- Confirmed groundwater flow direction
- Estimated groundwater flow direction



FOR MORE INFORMATION visit http://go.usa.gov/xAEQF or scan the QR code →



# **ACRONYMS & ABBREVIATIONS**

NAS OLF PFAS Outlying Landing Field per- and polyfluoroalkyl substances Naval Air Station U.S. Environmental Protection Agency

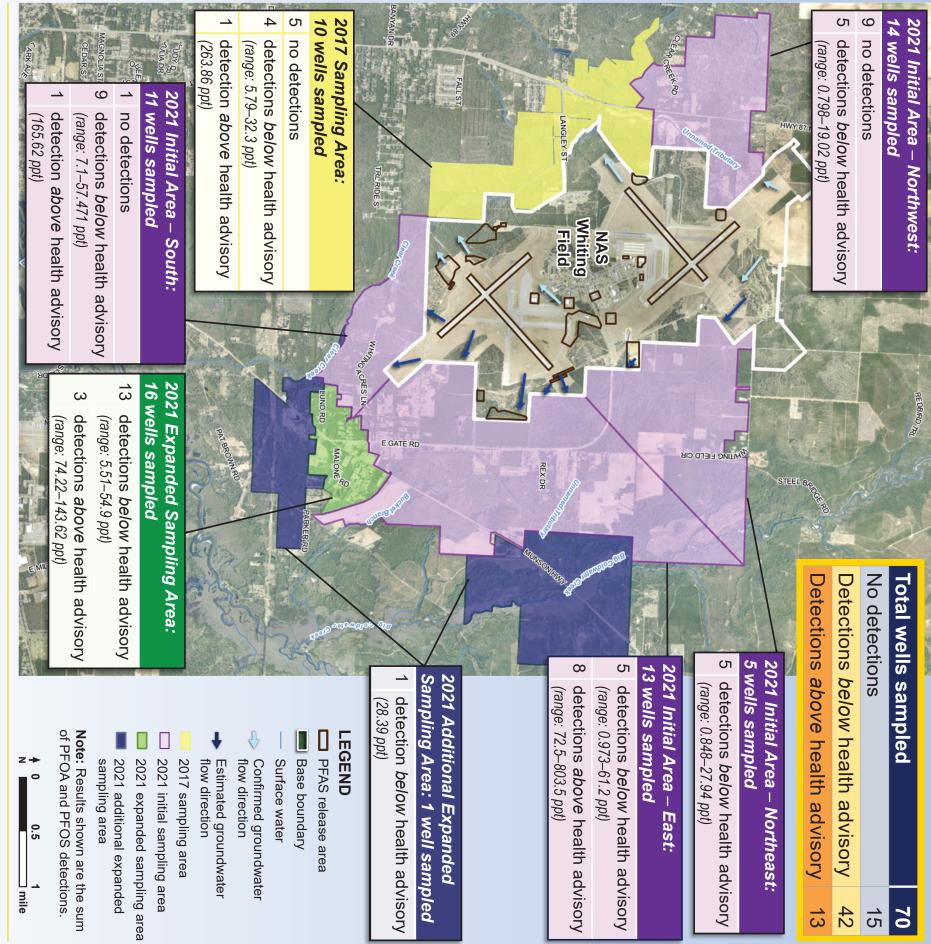
> PFOS perfluorooctane sulfonate perfluorooctanoic acid part(s) per trillion





# NAS Whiting Field Off-Base Drinking Water Sampling Area with PFOA and PFOS Results

#### advisory properties have been with connected results above Ö public the health water.



FOR MORE INFORMATION
visit http://go.usa.gov/xAEQF
or scan the QR code →



# **ACRONYMS & ABBREVIATIONS**

OLF Outlyi		EPA U.S. E
Outlying Landing Field	Naval Air Station	U.S. Environmental Protection Agency

**PFOS** 

perfluorooctane sulfonate perfluorooctanoic acid

part(s) per trillion



# NAS Whiting Sampling PFOA and PFOS Results Field Off-Base **Drinking Water**

2021 Additional Expanded Sampling Area									Sampling Area	2021 Expanded															2021 Initial Area – South												2021 Initial Area – East									Northeast	2021 Initial Area –									Northwest	2021 Initial Area –												2017 Sampling Area						Sampling Area
70	0	60	0/	67	88	6.7	64	63	62	61	00	60	50	58	57	56		n C	7 (	η C	л ( )	א ל	50	49	48	47	46	45	44	43	42	41	40	39	33	3/	30	33	0 C	ے د د	2 6	ى د	2 6	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	⇉	10	9	00	7	0	o (J	4 п	<u>د</u> دد	) N	) _		Sample
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below health advisory	below Health advisory	below health advisory	below nealth advisory	below realth advisory	bolow booth advisory	below health advisory	below fleatiff advisory	bolow boolth odvicory	helow health advisory	below health advisory	below health advisory	above health advisory	above fleatiff advisory	above realth advisory	about doctored	pot dotostod	bolow hoolth advisory	below health advisory	below health advisory	below health advisory	below health advisory	below health advisory	below health advisory		_			below health advisory	below health advisory	below health advisory	below health advisory	above nealth advisory	above nealth advisory	above nealth advisory	above riealth advisory	above health advisory	above health advisory	above health advisory	above health advisory					below health advisory	below health advisory	not detected					below health advisory	below health advisory	not detected	below health advisory	below health advisory	below health advisory	below health advisory	above fleatin advisory	lance boolth advicent	Result Interpretation															

Note: The "Q" columns identify data qualifiers that apply to given results. A "J" (estimated value) indicates the value reported for the analyte is detected below the LOQ. The value reported is considered estimated.

FOR MORE INFORMATION
visit http://go.usa.gov/xAEQF
or scan the QR code →



# ACRONYMS & ABBREVIATIONS

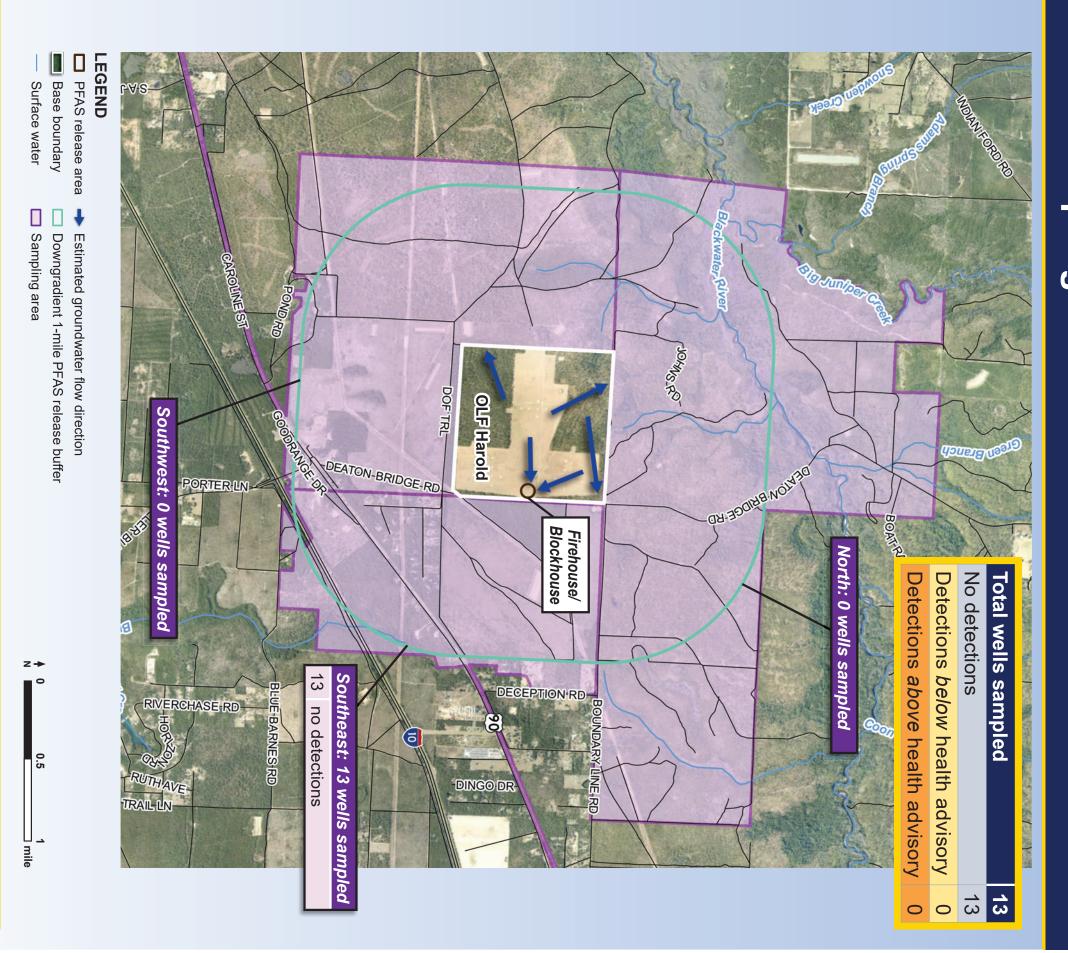
EPA NAS OLF PFAS Naval Air Station
Outlying Landing Field
per- and polyfluoroalkyl substances U.S. Environmental Protection Agency

> PFOA perfluorooctanoic acid
> PFOS perfluorooctane sulfonate part(s) per trillion





### OLF Sampling Area with PFOA and PFOS Harold Off-Base Drinking Water Results



FOR MORE INFORMATION visit http://go.usa.gov/xAEQF or scan the QR code →

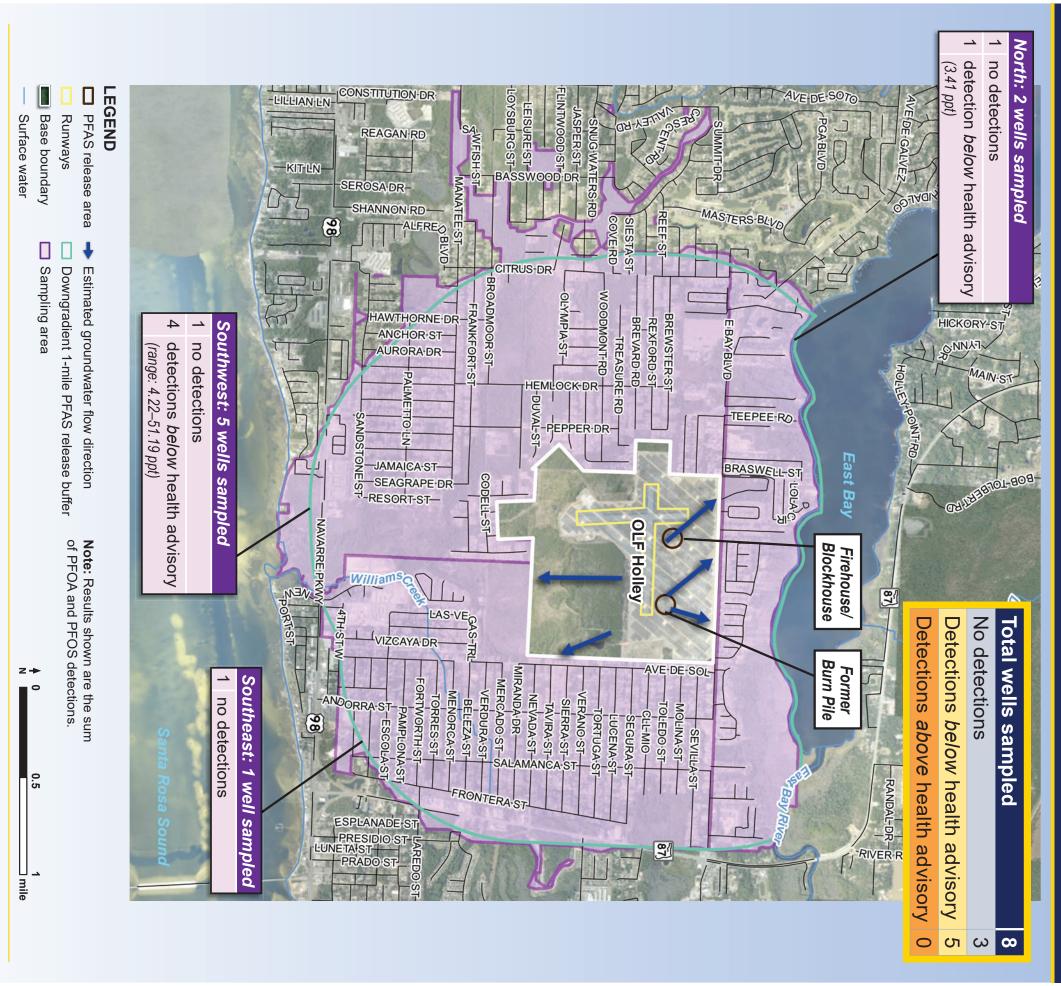


	ACRONYMS & ABBREVIATIONS	EVIATIO	S
EPA	U.S. Environmental Protection Agency	PFOA per	per
NAS	Naval Air Station	PFOS per	per
OLF	Outlying Landing Field	ppt	par
PFAS	PFAS per- and polyfluoroalkyl substances		

PFOA perfluorooctanoic acid
PFOS perfluorooctane sulfonate
ppt part(s) per trillion



### 0 Sampling Area with PFOA and PFOS 'n Holley Off-Base Drinking Water Results



FOR MORE INFORMATION visit http://go.usa.gov/xAEQF or scan the QR code →



# EPA U.S. Environmental Protection Agency NAS Naval Air Station OLF Outlying Landing Field PFAS per- and polyfluoroalkyl substances

Note: "Health advisory" refers to the EPA lifetime drinking water health advisory for PFOA and/or PFOS

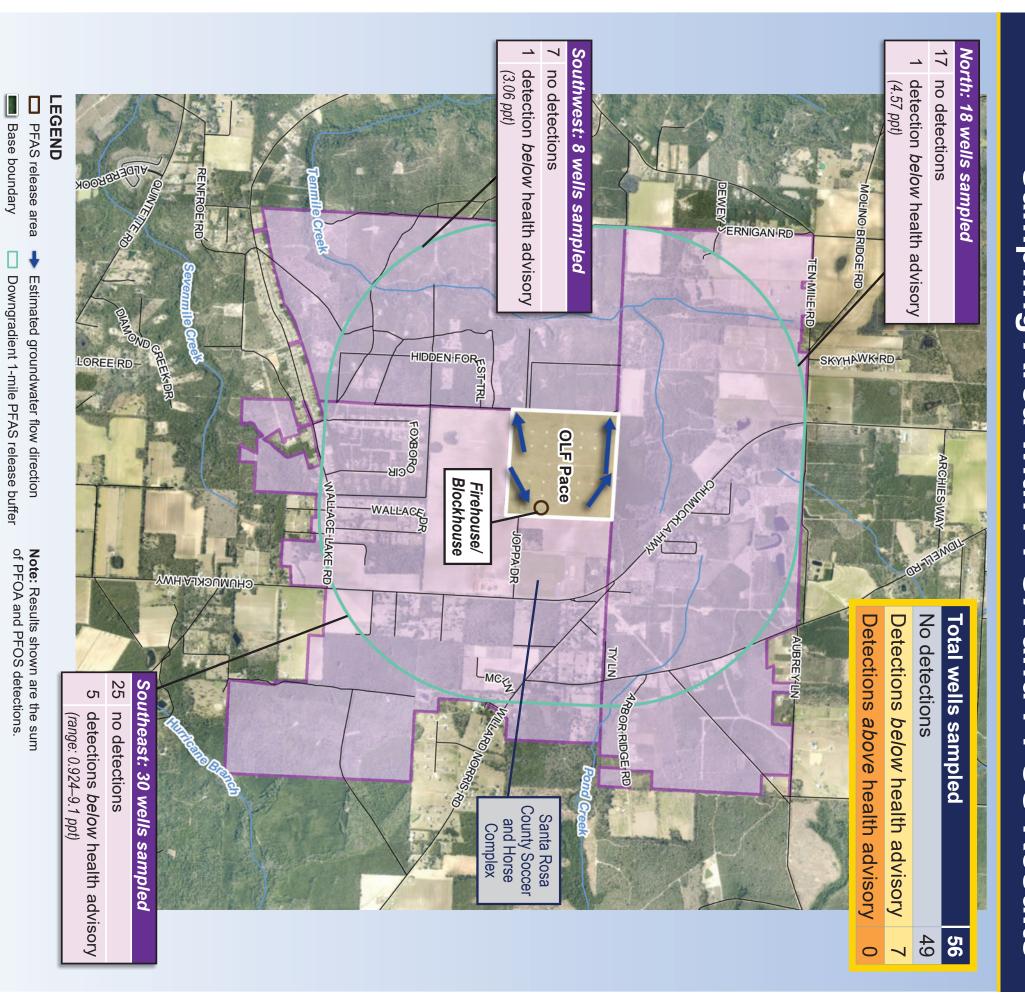
perfluorooctanoic acid perfluorooctane sulfonate

part(s) per trillion





## OLF Sampling Pace Area with PFOA and PFOS Results Off-Base **Drinking Water**



FOR MORE INFORMATION visit <a href="http://go.usa.gov/xAEQF">http://go.usa.gov/xAEQF</a> or scan the QR code →

Surface water

Sampling area



PFAS	OLF	NAS	EPA	

Naval Air Station Outlying Landing Field per- and polyfluoroalkyl substances U.S. Environmental Protection Agency ACRONYMS & ABBREVIATIONS PFOS PFOA

health advisory for PFOA and/or PFOS lifetime drinking water refers to the EPA Note: "Health advisory"

⊔ mile

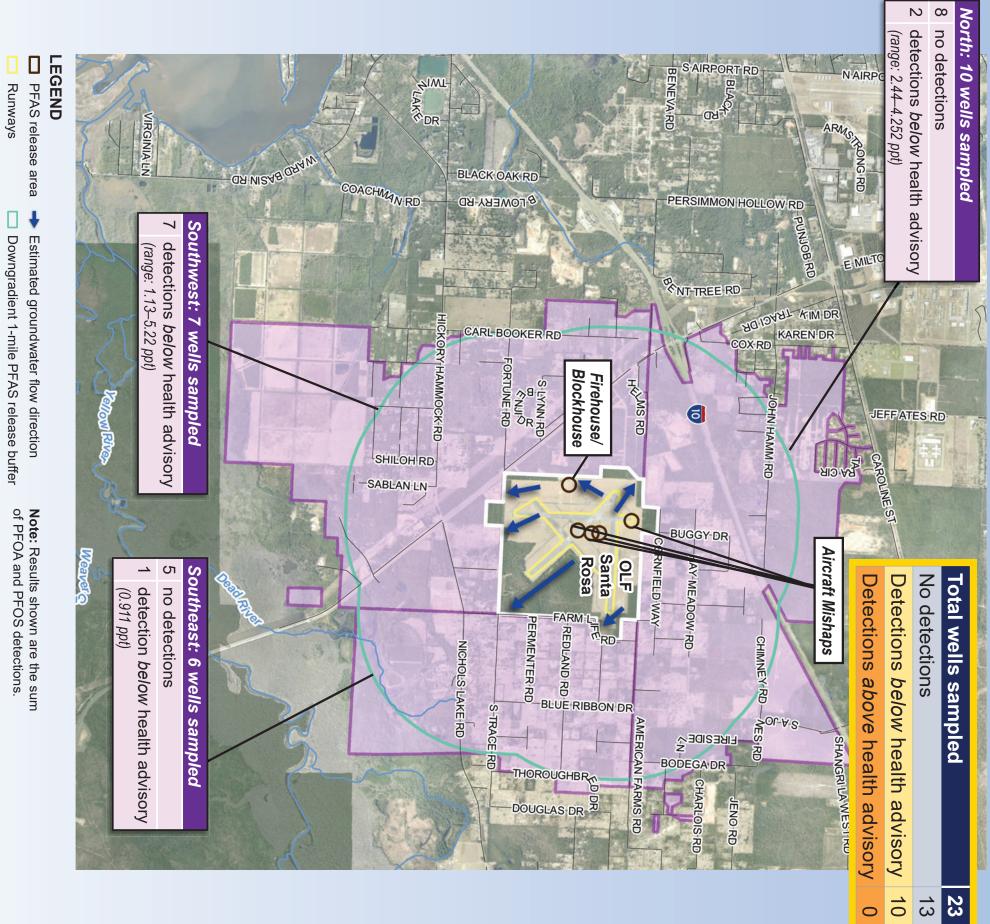
perfluorooctane sulfonate perfluorooctanoic acid

part(s) per trillion





# 0 Sampling Area with PFOA and PFOS Results 'n Santa Rosa Off-Base **Drinking Water**



FOR MORE INFORMATION visit http://go.usa.gov/xAEQF or scan the QR code →

Surface water Base boundary

Sampling area



#### NAS OLF PFAS EPA Outlying Landing Field per- and polyfluoroalkyl substances Naval Air Station U.S. Environmental Protection Agency

**Note:** Results shown are the sum of PFOA and PFOS detections.

z	<b>→</b>
	0
	0.5
mile	<u>.</u>

**ACRONYMS & ABBREVIATIONS** 

health advisory for PFOA and/or PFOS lifetime drinking water refers to the EPA Note: "Health advisory"

**PFOS** 

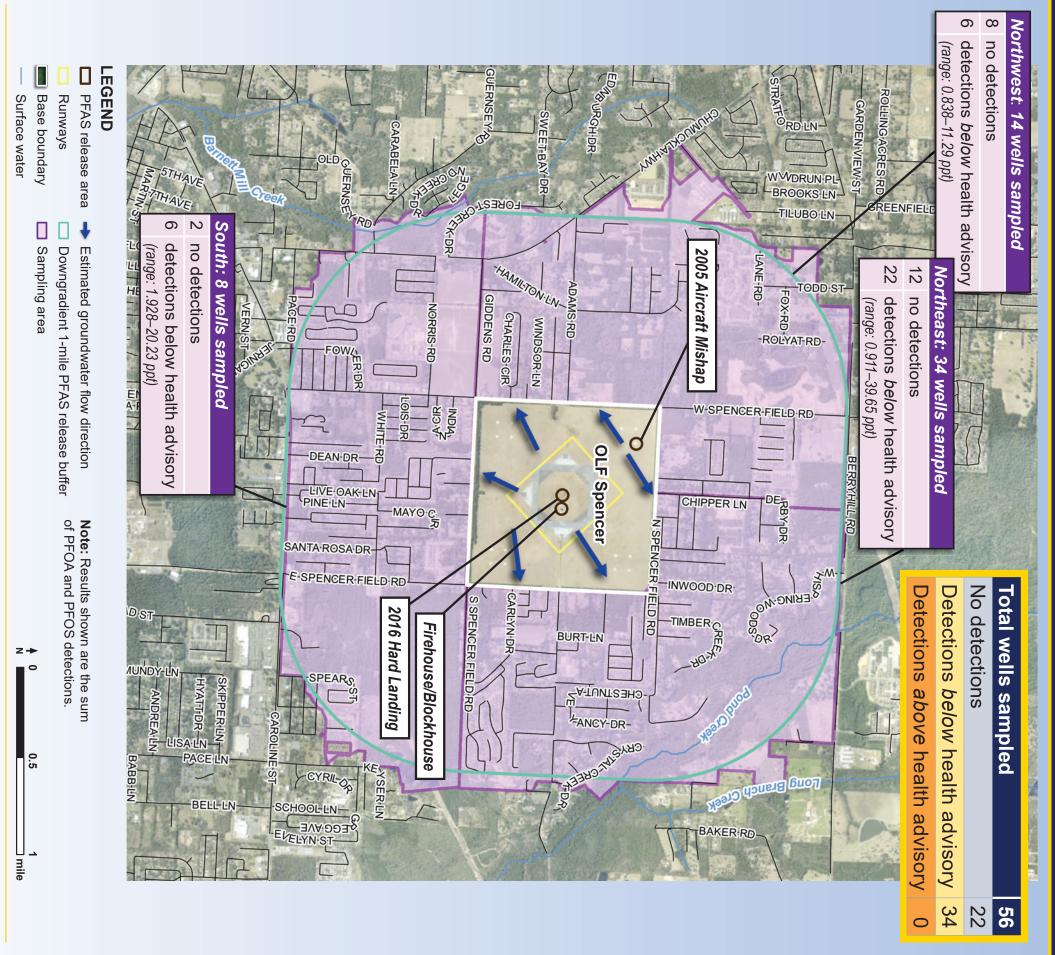
perfluorooctane sulfonate perfluorooctanoic acid

part(s) per trillion





## 0 Sampling Area with PFOA and PFOS Results 'n Spencer Off-Base Drinking Water



FOR MORE INFORMATION
visit http://go.usa.gov/xAEQF
or scan the QR code →



## 

# U.S. Environmental Protection Agency **ACRONYMS & ABBREVIATIONS**

NAS OLF PFAS Outlying Landing Field per- and polyfluoroalkyl substances Naval Air Station

PFOS

perfluorooctane sulfonate perfluorooctanoic acid

part(s) per trillion





# Understanding Data Packages

## Example **Data Report**

The EPA lifetime drinking water health advisory for PFOA and/or PFOS is 70 ppt (70 ng/L).

Sample ID:

nanogram per liter 1 ng/L 1 ppt part per trillion

This section contains sample processing information used by the laboratory.

EPA Method 537.1

	DL - Detection Limit	13C3-HFPO-DA	d5-EtFOSAA	13C2-PFDA	13C2-PFHxA	Labeled Standards	PFTeDA	11Cl-PF3OUdS	PFTrDA	PFDoA	PFUnA	EtFOSAA	MeFOSAA	PFDA	9CI-PF3ONS	PFOS	PFNA	PFOA	PFHxS	ADONA	PFHpA	HFPO-DA	PFHxA	PFBS	Analyte	Location:	Project:	Name:	Client Data
- DOT	LOD-																												
LOQ - Limit of quantitation	LOD - Limit of Detection	SURR	SURR	SURR	SURR	Туре	376-06-7	763051-92-9	72629-94-8	307-55-1	2058-94-8	2991-50-6	2355-31-9	335-76-2	756426-58-1	1763-23-1	375-95-1	335-67-1	355-46-4	919005-14-4	375-85-9	13252-13-6	307-24-4	375-73-5	CAS Number				
	Results	93.2	89.2	110	89.9	% Recovery	ND	1.54	ND	162	173	ND	16.9	ND	53.8	ND	Conc. (ng/L)		Date C	Matrix									
	Results reported to the DL.					7	0.738	0.738	0.738	0.738	0.738	0.738	0.738	0.738	0.738	0.738	0.738	0.738	0.738	0.738	0.738	0.738	0.738	0.738	DL		Date Collected: 20-Jan		
		70 - 130	70 - 130	70 - 130	70 - 130	Limits	1.48	1.48	1.48	1.48	1.48	1.48	1.48	1.48	1.48	1.48	1.48	1.48	1.48	1.48	1.48	1.48	1.48	1.48	LOD		20-Jan-21 12:00	Drinking Water	
							1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	DOJ		Date I	Lab Sa	Labor
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linear ar d branched isomers. analytes	orted, PFHxS,	B1A0133	B1A0133	B1A0133	B1A0133	Batch	B1A0133	Batch		21-Jan-21 10:20	2101137-08																		
ners. Only the lin	PFOA, PFOS, Mo	23-Jan-21	23-Jan-21	23-Jan-21	23-Jan-21	Extracted	23-Jan-21	Extracted		10:20	8																		
ear isomer is repo	eFOSAA and EtF	0.254 L	0.254 L	0.254 L	0.254 L	Samp Size	0.254 L	Samp Size			Column:																		
Only the linear isomer is reported for all other	When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both	25-Jan-21 14:24	25-Jan-21 14:24	25-Jan-21 14:24	25-Jan-21 14:24	Analyzed	25-Jan-21 14:24	Analyzed			BEH C18																		
		-	_		_	Dilution	1	_	_	_	_	_	_	_	_	-	1	1	2	_	_	_	_	_	Dilution				

The result for PFBS:

PFBS was *not* detected in the sample.

This is reported as "ND" (not detected).

PFOA was detected in the sample at 162 ng/L (162 ppt). The result for PFOA:

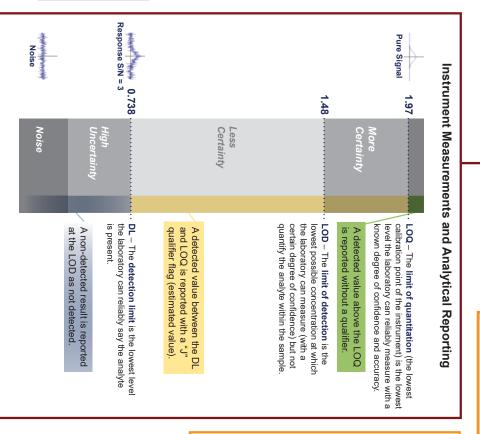
The result for PFOS

PFOS was detected in the sample at 1.54 ng/L (1.54 ppt).

The "J" qualifier means that the PFOS was detected but the amount detected is estimated.

A **surrogate** is a substance similar to the analytes of interest.

Not found naturally in the substance. Intentionally added to the sample at a known amount to monitor the performance of the sample's preparation and analysis.



This column identifies the data qualifiers that apply to a given result. Possible laboratory qualifiers are:

"B" (Blank) – this analyte was also detected in the method blank

"D" (Diluted Sample) – dilution was required by the laboratory to obtain a sample result within the calibration range. The final result is adjusted for the dilution factor.

the analyte is detected below the LOQ. The value reported is considered estimated. "J" (Estimated Value) – indicates the value reported for

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# **ACRONYMS & ABBREVIATIONS**

NAS OLF PFAS EPA Outlying Landing Field per- and polyfluoroalkyl substances Naval Air Station U.S. Environmental Protection Agency

PFOS PFOA perfluorooctane sulfonate perfluorooctanoic acid part(s) per trillion

#### Per- and Polyfluoroalkyl Substances (PFAS)

#### **What Are PFAS?**

- Family of manufactured chemicals.
- PFOA and PFOS are the most studied and understood.
- Found in the environment around the world (in air, water, soil, animals, plants, as well as in people).
- Last a long time in the environment.
- Used since 1940s in many products, such as:



firefighting foam



stain-resistant carpets and fabrics



water-resistant fabrics



personal care products



nonstick cookware



food packaging

#### What Is the EPA Lifetime Drinking Water Health Advisory for PFOA and PFOS?

- It is a combined level of PFOA and PFOS of 70 ppt in drinking water.
- It is intended to protect against harmful health effects to sensitive populations and the general public, for lifetime exposure.

#### How Was the EPA Lifetime Drinking Water Health Advisory Calculated?

- It is based on studies of health effects from PFOA and PFOS in laboratory animals.
- It assumes 20 percent of overall exposure is from drinking water, and 80 percent of overall exposure is from other sources.
- It considers information regarding health effects in people exposed to PFOA and PFOS, including the fetuses or nursing infants of mothers who are exposed.





#### **ACRONYMS & ABBREVIATIONS**

EPAU.S. Environmental Protection AgencyPFCNASNaval Air StationPFCOLFOutlying Landing Fieldppt

PFAS per- and polyfluoroalkyl substances

PFOA perfluorooctanoic acid
PFOS perfluorooctane sulfonate
ppt part(s) per trillion

#### **PFAS Exposure and Health Effects**

#### Do People Have PFAS in Their Bodies?

- CDC estimates that most people in the U.S. have PFAS in their bodies.
- PFAS can build up in the body.
- Reducing exposure to PFAS can reduce levels in the body.

#### **How Can People Be Exposed to PFAS?**

- PFAS may be in drinking water, food, indoor dust, some consumer products, and workplaces.
- Non-occupational exposures can occur by drinking water or eating food that contain PFAS.
- Exposure is minor through skin contact when bathing, showering, or swimming.
- Mothers with PFAS in their bodies can transfer PFAS to their fetuses or nursing infants.
- CDC advises that based on current science, the benefits of breastfeeding appear to outweigh the risks for infants exposed to PFAS in breastmilk.

#### How Can People Reduce Exposure to PFAS in Drinking Water?

- Use an alternative water source for drinking, cooking, brushing teeth, and making baby formula.
- Certain certified filters can reduce PFAS in drinking water.

FOR MORE INFORMATION
about certified PFAS filters:
visit <a href="http://www.nsf.org">http://www.nsf.org</a>
or scan the QR code →



**OLF** Outlying Landing Field

#### **What Are the Potential Health Effects?**

- Scientists are still learning about how exposure to PFAS affects people's health.
- Studies indicate possible health effects could include:
- Increased cholesterol levels.
- Changes in liver enzymes.
- Increased risk of high blood pressure and preeclampsia in pregnant women.
- Immune system effects.
- Small decrease in infant birth weight and changes in growth.
- Increased risks of certain types of cancers (testicular and kidney).
- Levels of PFAS in drinking water do not predict health impacts.

#### **Are Blood Tests Available for PFAS?**

- Blood testing for PFAS is available but is not a regular test offered by a doctor.
- Blood test results can't tell you if PFAS exposure will cause current or future health problems.
- Blood test results can't provide information on treatment.

Chemical exposures do not always lead to health effects.

FOR MORE INFORMATION
visit <a href="http://go.usa.gov/xAEQF">http://go.usa.gov/xAEQF</a>
or scan the QR code →



#### **ACRONYMS & ABBREVIATIONS**

CDC Centers for Disease Control and Prevention

EPA U.S. Environmental Protection Agency

NAS Naval Air Station

PFAS per- and polyfluoroalkyl substances
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ppt part(s) per trillion





#### **Environmental Cleanup Process**

#### **PRIORITY: Protect Human Health and the Environment**

- The structured regulatory process, shown below, is being used to identify and clean up past environmental releases at NAS Whiting Field and its outlying landing fields.
- The Florida Department of Environmental Protection and EPA are working closely with the Navy and are providing oversight at every step of the process.
- Public input is welcomed throughout the process and is formally solicited at certain points.
- From beginning to end, this process will be lengthy.

#### **PFAS Environmental Cleanup Process**

#### WE ARE HERE

#### Investigate

- Evaluate potential releases.
- Determine impacts and delineate extent of identified releases.
- Evaluate potential exposures and risks.

#### **Evaluate remedial** options

- Determine appropriate technology.
- Consider protectiveness, time to clean up, and cost.
- Solicit public input.

#### Design, construct, and implement

- Put remedy in place.
- Implement active or passive treatment, as appropriate.
- Provide long-term management, as needed.

#### **Cleanup complete**

- Achieve cleanup goals.
- Implement land use controls as needed.
- Solicit public input.

FOR MORE INFORMATION /isit http://go.usa.gov/xAEQF or scan the QR code —

#### **ACRONYMS & ABBREVIATIONS**

U.S. Environmental Protection Agency NAS Naval Air Station Outlying Landing Field

PFAS per- and polyfluoroalkyl substances

PFOA perfluorooctanoic acid PFOS perfluorooctane sulfonate part(s) per trillion



### NAS Whiting Field On-Base PFAS Drinking Water Investigation

- Drinking water at NAS Whiting Field is supplied by three on-base wells.
- In 2016, the on-base water supply was tested for six different PFAS, and none were detected.

In late 2020, NAS Whiting Field resampled the on-base drinking water, and PFOA and PFOS

were detected above the health advisory.

 On-base residents and employees were notified, and an alternative drinking and cooking water source was provided until a long-term solution was implemented.

- The water filtration system was modified to remove PFAS.
- No PFAS have been detected above the health advisory in the treated drinking water.
- On-base water supplies will continue to be monitored.

FOR MORE INFORMATION about on-base drinking water results: visit <a href="http://go.usa.gov/xASbN">http://go.usa.gov/xASbN</a> or scan the QR code →



PFAS per- and polyfluoroalkyl substances

# Drinking water well Water treatment plant Water treatment plant Water treatment plant Sand and Gravel aquifer Groundwater flows into well here (approximately 200 feet below ground surface) Pensacola Clay confining unit



	ACRONYMS & ABBRE	VIATIO	NS					
EPA	U.S. Environmental Protection Agency	PFOA	perfluorooctanoic acid					
NAS	Naval Air Station	PFOS	perfluorooctane sulfonate					
OLF	Outlying Landing Field	ppt	part(s) per trillion					



#### Sign Up for Your Sampling Appointment

#### **Off-Base Drinking Water Well Sampling**

- The Navy will be sampling drinking water wells in the sampling areas.
- Sampling is at no cost to you.
- Drinking water samples will be collected Monday, June 13 through Saturday, June 18, 2022.
- Sampling appointments are available on these days 8 a.m.-5 p.m.

Additional times are available upon request

- The property owner must give permission for sampling and is asked to complete the questionnaire.
- Sampling takes less than an hour.
- An adult must be present at the property during sampling.

#### **Sampling Process**

- Samples will be collected by a team of experienced contractors:
  - Team will consist of two members.
  - The water sample will be collected as close to well as possible.
  - Water will run for 5 minutes prior to collection.
- Samples will be collected and analyzed according to EPA guidelines.

The Navy will provide bottled water for cooking and drinking if PFOA and/or PFOS are above the EPA health advisory (70 ppt).



#### **ACRONYMS & ABBREVIATIONS**

EPA U.S. Environmental Protection AgencyNAS Naval Air StationOLF Outlying Landing Field

PFAS per- and polyfluoroalkyl substances

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