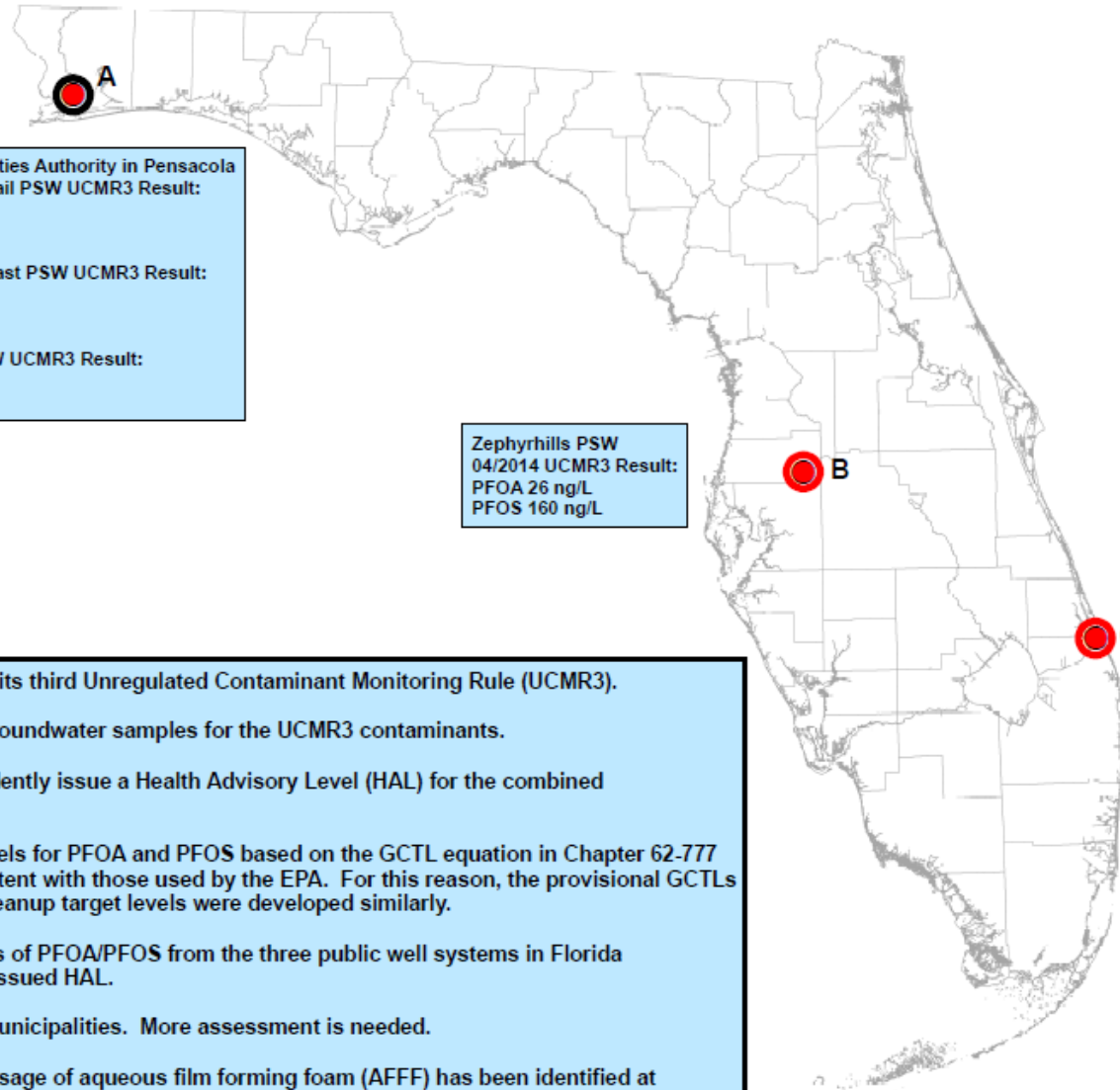


ID	UCMR PFAS Site
A	Emerald Coast Utilities Authority in Pensacola
B	Zephyrhills PSW
C	Stuart PSW



Status	
<span style="color: green;">●</span>	< Provisional GCTLs
<span style="color: red;">●</span>	> Provisional GCTLs

**Emerald Coast Utilities Authority in Pensacola**  
 11/2014 Spanish Trail PSW UCMR3 Result:  
 PFOA not detected  
 PFOS 66 ng/L

05/2014 Bronson East PSW UCMR3 Result:  
 PFOA 24 ng/L  
 PFOS 160 ng/L

11/2014 Hagler PSW UCMR3 Result:  
 PFOA 65 ng/L  
 PFOS 380 ng/L

**Zephyrhills PSW**  
 04/2014 UCMR3 Result:  
 PFOA 26 ng/L  
 PFOS 160 ng/L

**Stuart PSW**  
 07/2014 UCMR3 Result:  
 PFOA not detected  
 PFOS 180 ng/L

<span style="color: green;">○</span>	FDOH Results < HAL
<span style="color: red;">○</span>	FDOH Results > HAL
<span style="color: yellow;">○</span>	Awaiting FDOH Results
<span style="border: 1px solid black; border-radius: 50%; width: 10px; height: 10px; display: inline-block;"></span>	Yet to be Sampled by FDOH

In 2012 EPA releases a list of 30 emerging contaminants in its third Unregulated Contaminant Monitoring Rule (UCMR3). Public Well Systems (PWSs) nationwide begin analyzing groundwater samples for the UCMR3 contaminants.

In 2016 EPA and the Florida Department of Health independently issue a Health Advisory Level (HAL) for the combined concentrations of PFOA & PFOS of 70 ng/L.

DEP developed provisional groundwater cleanup target levels for PFOA and PFOS based on the GCTL equation in Chapter 62-777 Florida Administrative Code and other assumptions consistent with those used by the EPA. For this reason, the provisional GCTLs are numerically equivalent to the HALs. Provisional soil cleanup target levels were developed similarly.

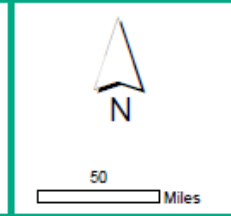
In 2017 DEP begins assessment to determine likely sources of PFOA/PFOS from the three public well systems in Florida with PFOA + PFOS concentrations exceeding the recently issued HAL.

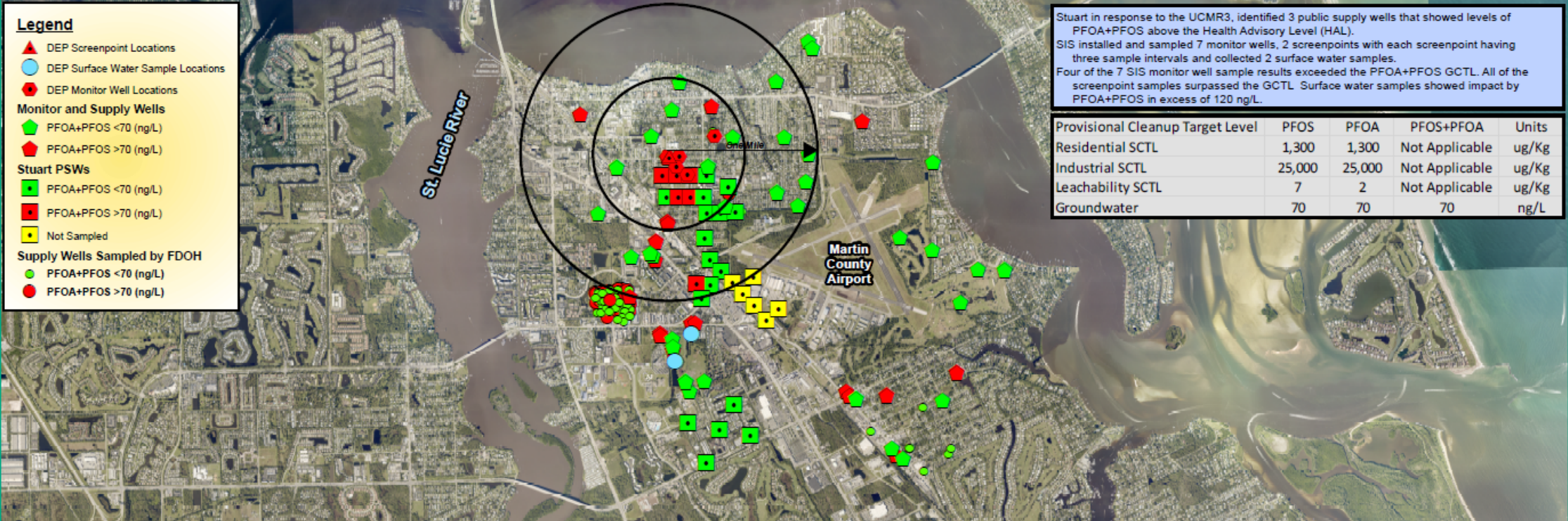
DEP has conducted preliminary assessments at all three municipalities. More assessment is needed.

PFOA/PFOS groundwater contamination originating from usage of aqueous film forming foam (AFFF) has been identified at Zephyrhills and Stuart. Additional sources are possible. Sources affecting Emerald Coast Utilities Authority-Pensacola wells have not yet been determined.

**Florida UCMR3 PFAS Sites Assessment Results  
 With Associated Florida Department of Health  
 Community Well Survey Sample Results  
 As of September 11, 2019**

PFAS: Per- and polyfluoroalkyl substances  
 UCMR3: Third Unregulated Contaminant Monitoring Rule (2012)  
 PFOA: Perfluorooctanoic acid PFOS: Perfluorooctanesulfonic acid  
 PSW: Public Supply Well  
 PGCTL: Provisional Groundwater Cleanup Target Level (PFOA+PFOS=70 nanograms per Liter [ng/L])  
 HAL: Health Advisory Level (PFOA+PFOS=70 ng/L)  
 FDOH: Florida Department of Health





**Legend**

- ▲ DEP Screenpoint Locations
- DEP Surface Water Sample Locations
- DEP Monitor Well Locations
- Monitor and Supply Wells**
- PFOA+PFOS <70 (ng/L)
- PFOA+PFOS >70 (ng/L)
- Stuart PSWs**
- PFOA+PFOS <70 (ng/L)
- PFOA+PFOS >70 (ng/L)
- Not Sampled
- Supply Wells Sampled by FDOH**
- PFOA+PFOS <70 (ng/L)
- PFOA+PFOS >70 (ng/L)

Stuart in response to the UCMR3, identified 3 public supply wells that showed levels of PFOA+PFOS above the Health Advisory Level (HAL). SIS installed and sampled 7 monitor wells, 2 screenpoints with each screenpoint having three sample intervals and collected 2 surface water samples. Four of the 7 SIS monitor well sample results exceeded the PFOA+PFOS GCTL. All of the screenpoint samples surpassed the GCTL. Surface water samples showed impact by PFOA+PFOS in excess of 120 ng/L.

Provisional Cleanup Target Level	PFOS	PFOA	PFOS+PFOA	Units
Residential SCTL	1,300	1,300	Not Applicable	ug/Kg
Industrial SCTL	25,000	25,000	Not Applicable	ug/Kg
Leachability SCTL	7	2	Not Applicable	ug/Kg
Groundwater	70	70	70	ng/L

DEP contacted city personnel and were informed that one potential source area was likely a public safety complex where AFFF had been dispersed for training. The city conducted a preliminary assessment at the complex that confirmed the presence of PFOA and PFOS in groundwater above the provisional GCTL. The city shut down three nearby public supply wells after analytical results revealed exceedances of the HAL in each.

DEP assisted by collecting groundwater samples from an expanded area. The samples were collected from existing monitor and irrigation wells. Results indicated exceedances of the provisional GCTL.

DOH was notified and began canvassing neighborhoods within ½ mile of the city complex to determine locations of private supply wells. A representative number of wells was identified. After receiving permission from the owners, DOH collected samples for analysis of PFAS-related compounds.

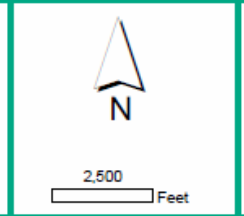
The sampling radius was adjusted based on the analytical results from private and public supply wells, in addition to those of the monitor wells sampled by DEP. Exceedances of the HAL warrant an expansion of the sampling radius. DOH adjusted their scope of work accordingly. Wells exceeding ½ the HAL are resampled. DOH continues to sample private supply wells and adjust the sampling plan as needed.

Additional assessment will be necessary to delineate the extent of the known source area and to determine if additional source areas are present.

DEP's efforts will be supported by the EPA's Office of Research and Development. This partnership will allow DEP to have access to additional expertise and resources. The goal is to use forensics and modeling to possibly distinguish one source from another.

**Stuart UCMR3 PFAS Study**  
**Florida Department of Environmental Protection and**  
**Florida Department of Health PFOA+PFOS Sample Results**  
**As of September 11, 2019**  
**Stuart, Martin County, Florida**

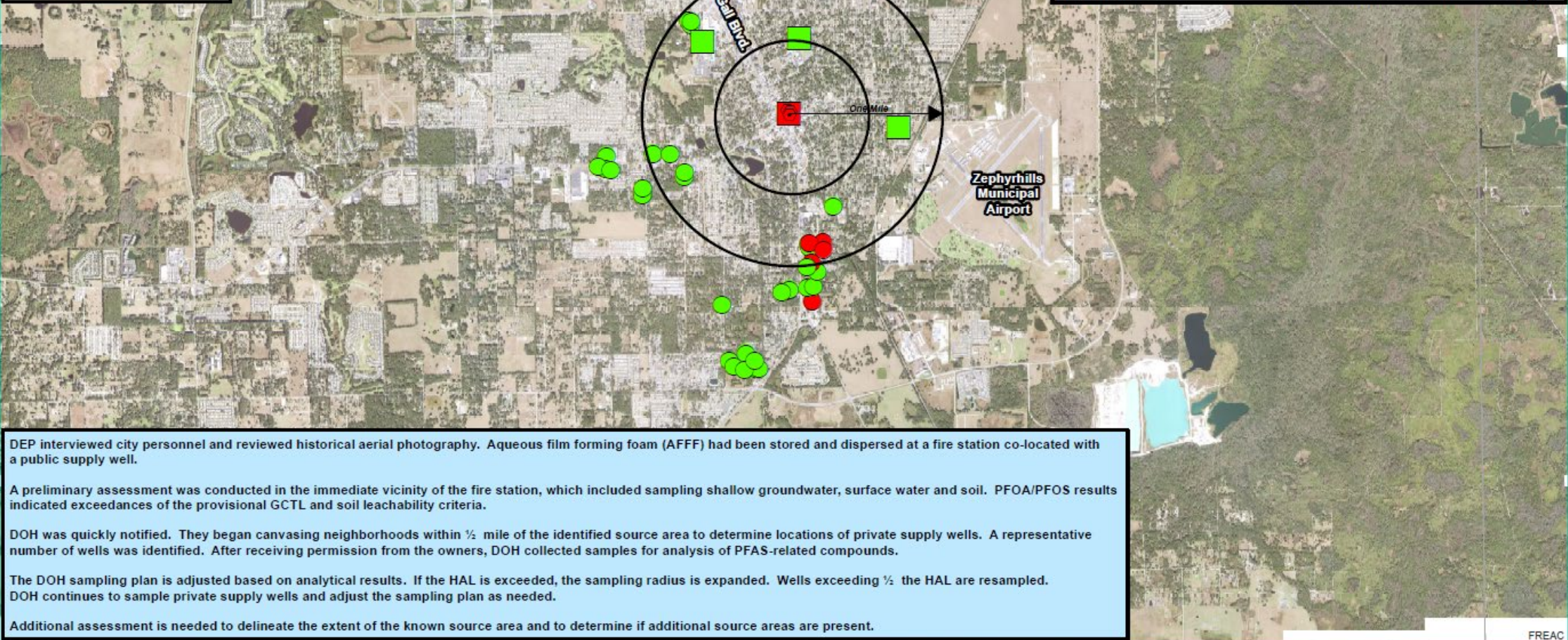
PFAS: Per- and polyfluoroalkyl substances  
 UCMR3: Third Unregulated Contaminant Monitoring Rule (2012)  
 PFOA: Perfluorooctanoic acid PFOS: Perfluorooctanesulfonic acid  
 PSW: Public Supply Well  
 GCTL: Provisional Groundwater Cleanup Target Level (PFOA+PFOS=70 nanograms per Liter [ng/L])  
 SCTL: Provisional Soil Cleanup Target Level  
 HAL: Health Advisory Level (PFOA+PFOS=70 ng/L)  
 FDOH: Florida Department of Health SIS: FDEP Site Investigation Section  
 ug/Kg: micrograms per Kilogram



FREAQ, FDOH, FDOT

**Legend**

- DEP Monitor Wells
- Zephyrhills PSW #1 Former Location
- Supply Wells Sampled by FDOH**
- PFOA+PFOS <70 (ng/L)
- PFOA+PFOS >70 (ng/L)
- Zephyrhills Public Supply Wells



Former Zephyrhills PSW #1 located inside Fire Station #2.  
 An April 2014 UCMR3 sample detected PFOA+PFOS at a level of 186 ng/L.  
 SIS installed and sampled 4 monitor wells; collected soil samples from 3 locations at 2 intervals; collected 1 surface water sample.  
 Three of the 6 SIS soil sample results exceeded the PFOS provisional leachability criteria.  
 Three of the 4 SIS monitor well sample results exceeded the PFOA+PFOS GCTL.

Provisional Cleanup Target Level	PFOS	PFOA	PFOS+PFOA	Units
Residential SCTL	1,300	1,300	Not Applicable	ug/Kg
Industrial SCTL	25,000	25,000	Not Applicable	ug/Kg
Leachability SCTL	7	2	Not Applicable	ug/Kg
Groundwater	70	70	70	ng/L

DEP interviewed city personnel and reviewed historical aerial photography. Aqueous film forming foam (AFFF) had been stored and dispersed at a fire station co-located with a public supply well.

A preliminary assessment was conducted in the immediate vicinity of the fire station, which included sampling shallow groundwater, surface water and soil. PFOA/PFOS results indicated exceedances of the provisional GCTL and soil leachability criteria.

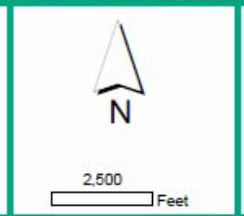
DOH was quickly notified. They began canvassing neighborhoods within ½ mile of the identified source area to determine locations of private supply wells. A representative number of wells was identified. After receiving permission from the owners, DOH collected samples for analysis of PFAS-related compounds.

The DOH sampling plan is adjusted based on analytical results. If the HAL is exceeded, the sampling radius is expanded. Wells exceeding ½ the HAL are resampled. DOH continues to sample private supply wells and adjust the sampling plan as needed.

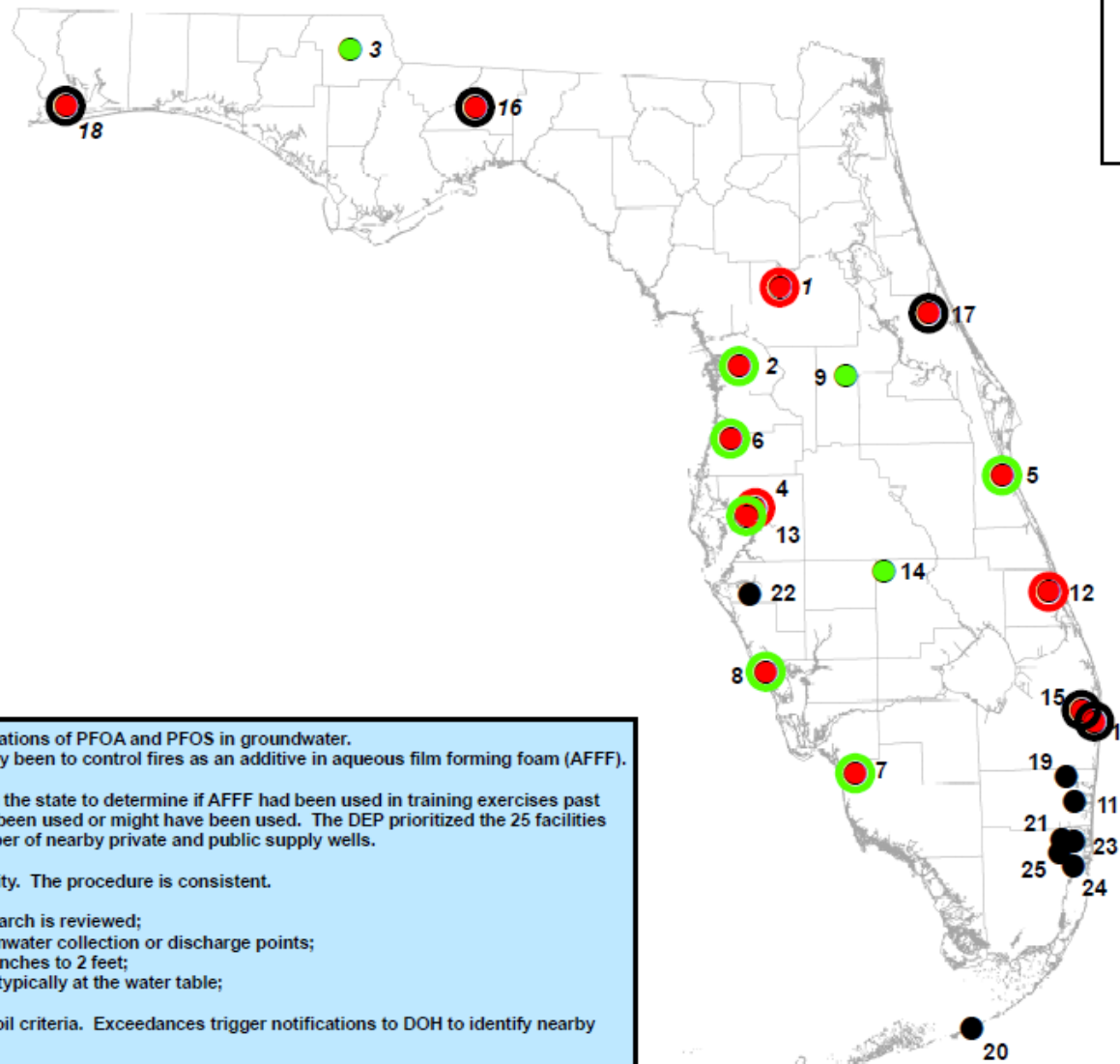
Additional assessment is needed to delineate the extent of the known source area and to determine if additional source areas are present.

**Zephyrhills UCMR3 PFAS Study**  
 Florida Department of Environmental Protection and  
 Florida Department of Health PFOA+PFOS Sample Results  
 As of September 11, 2019  
 Zephyrhills, Pasco County, Florida

PFAS: Per- and polyfluoroalkyl substances  
 UCMR3: Third Unregulated Contaminant Monitoring Rule (2012)  
 PFOA: Perfluorooctanoic acid PFOS: Perfluorooctanesulfonic acid  
 PSW: Public Supply Well  
 GCTL: Provisional Groundwater Cleanup Target Level (PFOA+PFOS=70 nanograms per Liter [ng/L])  
 SCTL: Provisional Soil Cleanup Target Level  
 HAL: Health Advisory Level (PFOA+PFOS=70 ng/L)  
 FDOH: Florida Department of Health SIS: FDEP Site Investigation Section  
 ug/Kg: micrograms per Kilogram



ID	Training Center
1	Florida State Fire College
2	Citrus Sheriff Fire Training Center
3	Chipola College
4	Hillsborough Community College
5	Melbourne Fire Training Facility
6	Pasco County Fire Rescue Training Center
7	Bonita Spings Fire Control and Rescue District
8	Englewood Fire Department
9	Lake Tech Fire Academy
10	Palm Beach State College
11	Plantation Fire Department
12	Indian River State College
13	Tampa Fire Rescue Training Facility
14	South Florida State College
15	Palm Beach County Fire Rescue
16	Tallahassee Fire Department
17	Volusia County Fire Training Center
18	Pensacola Fire Department
19	Coral Springs Fire Academy
20	Monroe County Training Academy (Joe London)
21	City of Hialeah Training Facility
22	Manatee Technical Institute Fire Academy
23	Miami Dade College
24	City of Miami Fire Rescue Training Center
25	Miami Dade Fire Rescue



● < PFOA+PFOS Provisional GCTL  
● > PFOA+PFOS Provisional GCTL  
● Awaiting Analysis  
● Yet to be Sampled

○ FDOH Results < HAL  
○ FDOH Results > HAL  
○ Awaiting FDOH Results  
○ Yet to be Sampled by FDOH

In 2016 the Florida DOH issued a HAL of 70 ng/L for the sum concentrations of PFOA and PFOS in groundwater. These compounds have a variety of uses, one of which has historically been to control fires as an additive in aqueous film forming foam (AFFF).

The DEP reached out to the 45 certified fire training facilities (FTFs) in the state to determine if AFFF had been used in training exercises past or present. A total of 25 facilities responded that AFFF had definitely been used or might have been used. The DEP prioritized the 25 facilities based on the frequency of AFFF usage, as well as the estimated number of nearby private and public supply wells.

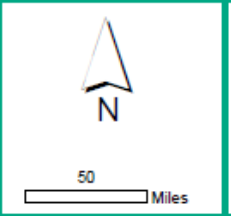
DEP is conducting preliminary site assessments at each training facility. The procedure is consistent.

- Facilities are contacted and site access is secured;
- Interviews are conducted with facility personnel and historical research is reviewed;
- Likely locations are identified for AFFF storage, dispersal and stormwater collection or discharge points;
- Soil samples are collected generally from 0 to 6 inches and from 6 inches to 2 feet;
- Groundwater samples are collected from temporary monitor wells, typically at the water table;
- Samples are analyzed for PFAS;
- Results are compared to applicable provisional groundwater and soil criteria. Exceedances trigger notifications to DOH to identify nearby private supply wells and initiate sampling as needed;


Thus far, three facilities have confirmed off-site migration of PFOA/PFOS in groundwater.  
<https://floridadep.gov/waste/waste-cleanup/content/fire-training-facilities-assessment-pfoa-and-pfos>

**Florida Fire Training Facilities PFAS Assessment Results  
 With Associated Florida Department of Health  
 Community Well Survey Sample Results  
 As of September 11, 2019**



Facilities are listed in order of priority to be addressed  
 PFAS: Per- and polyfluoroalkyl substances  
 PFOA: Perfluorooctanoic acid PFOS: Perfluorooctanesulfonic acid  
 ng/L: nanograms per Liter  
 PGCTL: Provisional Groundwater Cleanup Target Level  
 HAL: Health Advisory Level  
 FDOH: Florida Department of Health

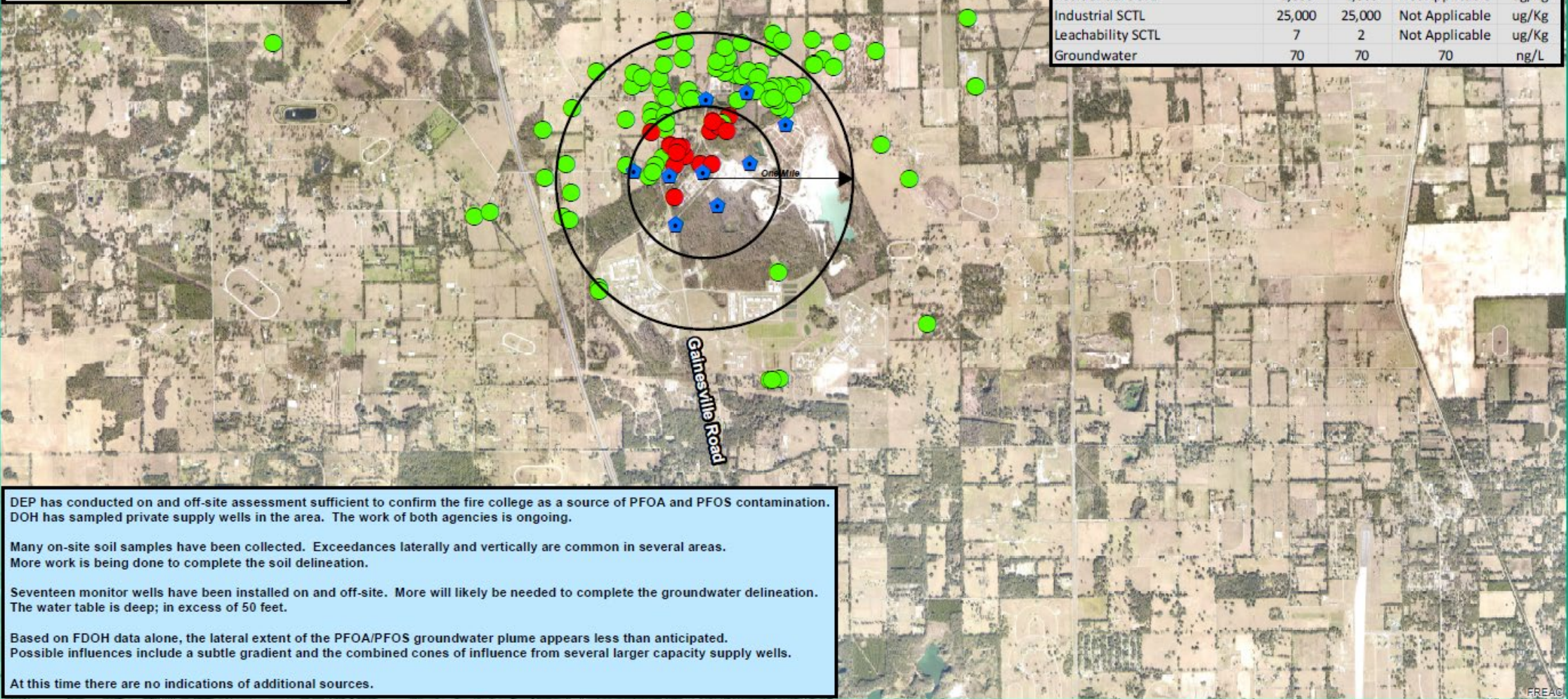


**Legend**

-  DEP Installed Monitor Wells (Two well clusters)

**Supply Wells Sampled by FDOH**

-  PFOA+PFOS <70 (ng/L)
-  PFOA+PFOS >70 (ng/L)



SIS installed and sampled 8 Floridan aquifer monitor well clusters plus a single well (total of 17); collected soil samples to delineate areas with AFFF product spillage and surface applications; collected six surface water samples.

Most of the SIS soil sample results exceeded the PFOS provisional leachability criteria; some exceeded the PFOA provisional leachability criteria. Samples in the drum storage area were reported to exceed the Industrial SCTL.

Provisional Cleanup Target Level	PFOS	PFOA	PFOS+PFOA	Units
Residential SCTL	1,300	1,300	Not Applicable	ug/Kg
Industrial SCTL	25,000	25,000	Not Applicable	ug/Kg
Leachability SCTL	7	2	Not Applicable	ug/Kg
Groundwater	70	70	70	ng/L

DEP has conducted on and off-site assessment sufficient to confirm the fire college as a source of PFOA and PFOS contamination. DOH has sampled private supply wells in the area. The work of both agencies is ongoing.

Many on-site soil samples have been collected. Exceedances laterally and vertically are common in several areas. More work is being done to complete the soil delineation.

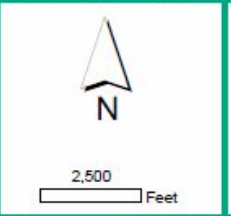
Seventeen monitor wells have been installed on and off-site. More will likely be needed to complete the groundwater delineation. The water table is deep; in excess of 50 feet.

Based on FDOH data alone, the lateral extent of the PFOA/PFOS groundwater plume appears less than anticipated. Possible influences include a subtle gradient and the combined cones of influence from several larger capacity supply wells.

At this time there are no indications of additional sources.

**Florida State Fire College**  
**Florida Department of Environmental Protection and**  
**Florida Department of Health PFOA+PFOS Sample Results**  
**As of September 11, 2019**  
**Ocala, Marion County, Florida**

PFAS: Per- and polyfluoroalkyl substances  
PFOA: Perfluorooctanoic acid PFOS: Perfluorooctanesulfonic acid  
PSW: Public Supply Well  
GCTL: Provisional Groundwater Cleanup Target Level (PFOA+PFOS=70 nanograms per Liter [ng/L])  
SCTL: Provisional Soil Cleanup Target Level  
HAL: Health Advisory Level (PFOA+PFOS=70 ng/L)  
FDOH: Florida Department of Health SIS: FDEP Site Investigation Section  
ug/Kg: micrograms per Kilogram

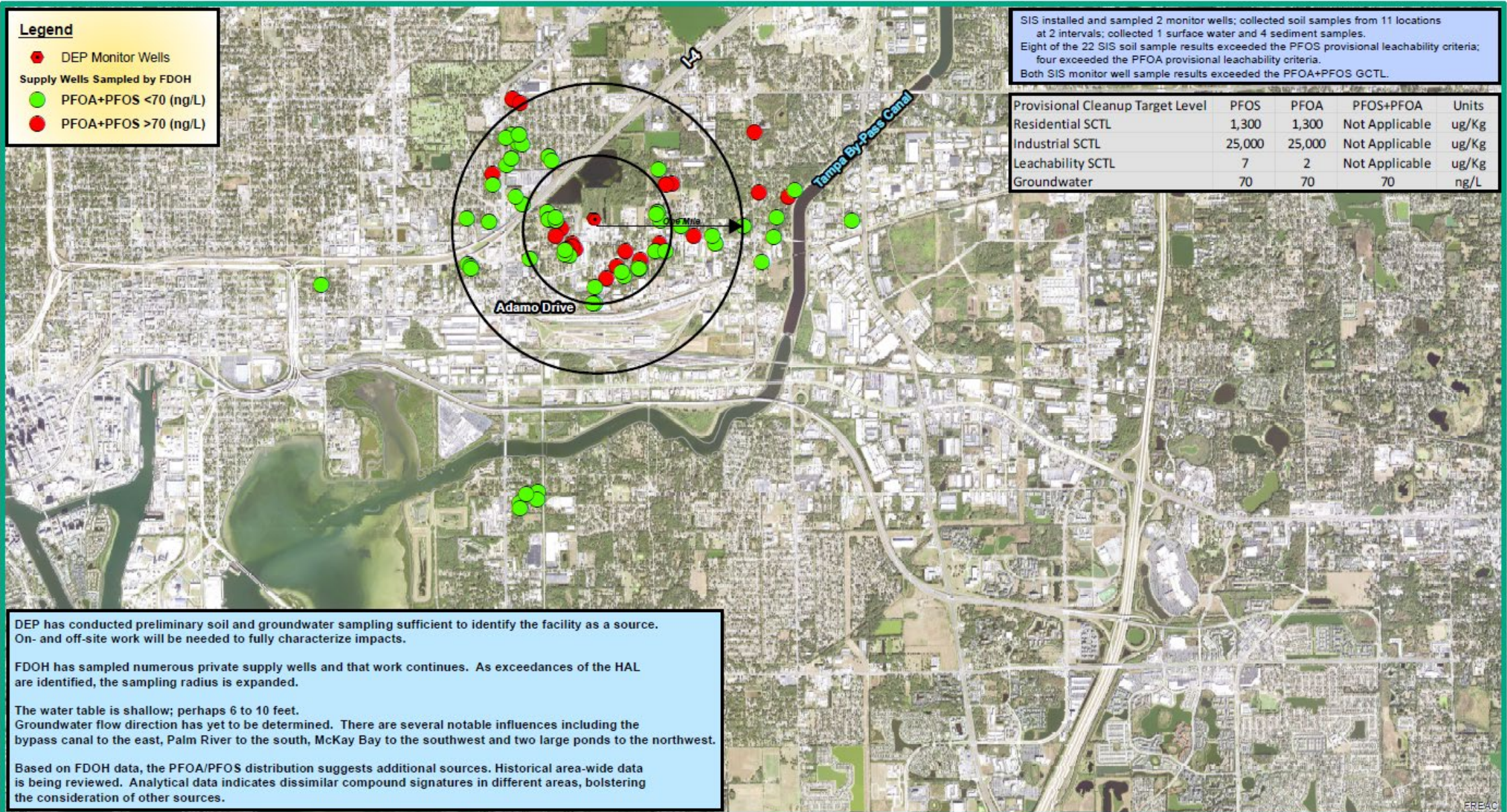


**Legend**

- DEP Monitor Wells
- Supply Wells Sampled by FDOH
- PFOA+PFOS <70 (ng/L)
- PFOA+PFOS >70 (ng/L)

SIS installed and sampled 2 monitor wells; collected soil samples from 11 locations at 2 intervals; collected 1 surface water and 4 sediment samples.  
 Eight of the 22 SIS soil sample results exceeded the PFOS provisional leachability criteria; four exceeded the PFOA provisional leachability criteria.  
 Both SIS monitor well sample results exceeded the PFOA+PFOS GCTL.

Provisional Cleanup Target Level	PFOS	PFOA	PFOS+PFOA	Units
Residential SCTL	1,300	1,300	Not Applicable	ug/Kg
Industrial SCTL	25,000	25,000	Not Applicable	ug/Kg
Leachability SCTL	7	2	Not Applicable	ug/Kg
Groundwater	70	70	70	ng/L



DEP has conducted preliminary soil and groundwater sampling sufficient to identify the facility as a source. On- and off-site work will be needed to fully characterize impacts.

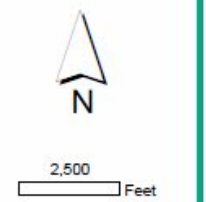
FDOH has sampled numerous private supply wells and that work continues. As exceedances of the HAL are identified, the sampling radius is expanded.

The water table is shallow; perhaps 6 to 10 feet. Groundwater flow direction has yet to be determined. There are several notable influences including the bypass canal to the east, Palm River to the south, McKay Bay to the southwest and two large ponds to the northwest.

Based on FDOH data, the PFOA/PFOS distribution suggests additional sources. Historical area-wide data is being reviewed. Analytical data indicates dissimilar compound signatures in different areas, bolstering the consideration of other sources.

Hillsborough Community College  
 Florida Department of Environmental Protection and  
 Florida Department of Health PFOA+PFOS Sample Results  
 As of September 11, 2019  
 Tampa, Hillsborough County, Florida

PFAS: Per- and polyfluoroalkyl substances  
 PFOA: Perfluorooctanoic acid PFOS: Perfluorooctanesulfonic acid  
 PSW: Public Supply Well  
 GCTL: Provisional Groundwater Cleanup Target Level (PFOA+PFOS=70 nanograms per Liter [ng/L])  
 SCTL: Provisional Soil Cleanup Target Level  
 HAL: Health Advisory Level (PFOA+PFOS=70 ng/L)  
 FDOH: Florida Department of Health SIS: FDEP Site Investigation Section  
 ug/Kg: micrograms per Kilogram



**Legend**

● DEP Monitor Wells

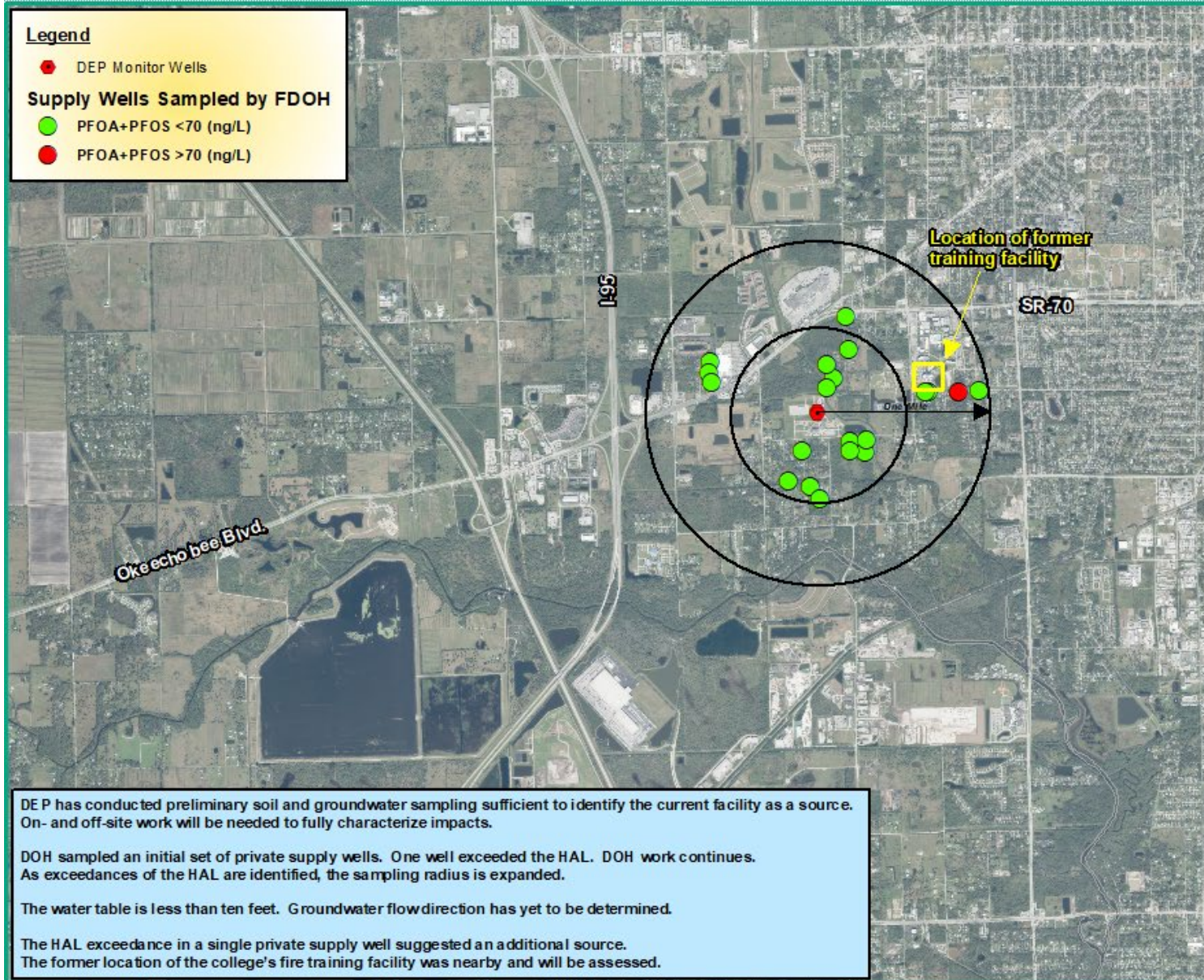
**Supply Wells Sampled by FDOH**

● PFOA+PFOS <70 (ng/L)

● PFOA+PFOS >70 (ng/L)

SIS installed and sampled 2 monitor wells; collected soil samples from 12 locations at 2 intervals; collected 2 surface water and 3 sediment samples. Three of the 24 SIS soil sample results exceeded the PFOA provisional leachability criteria and one exceeded the PFOA criteria. Both of the SIS monitor well sample results exceeded the PFOA+PFOS GCTL.

Provisional Cleanup Target Level	PFOS	PFOA	PFOA+PFOA	Units
Residential SCTL	1,300	1,300	Not Applicable	ug/Kg
Industrial SCTL	25,000	25,000	Not Applicable	ug/Kg
Leachability SCTL	7	2	Not Applicable	ug/Kg
Groundwater	70	70	70	ng/L



1980 (Location of former fire training facility)



2019

DEP has conducted preliminary soil and groundwater sampling sufficient to identify the current facility as a source. On- and off-site work will be needed to fully characterize impacts.

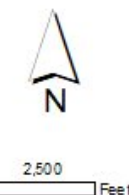
DOH sampled an initial set of private supply wells. One well exceeded the HAL. DOH work continues. As exceedances of the HAL are identified, the sampling radius is expanded.

The water table is less than ten feet. Groundwater flow direction has yet to be determined.

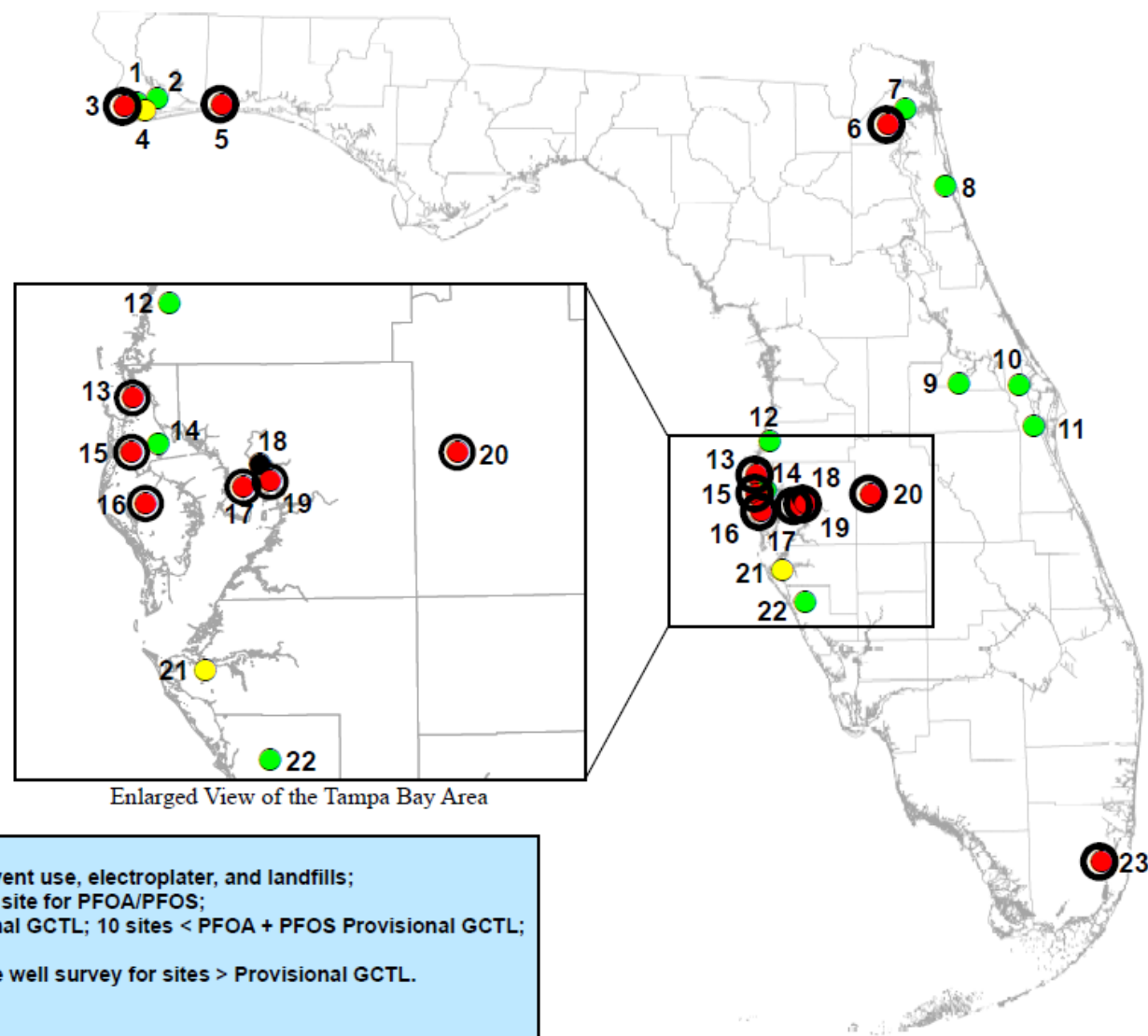
The HAL exceedance in a single private supply well suggested an additional source. The former location of the college's fire training facility was nearby and will be assessed.

**Indian River State College**  
**Florida Department of Environmental Protection and**  
**Florida Department of Health PFOA+PFOS Sample Results**  
**As of September 11, 2019**  
**Ft. Pierce, St. Lucie County, Florida**

PFAS: Per- and polyfluoroalkyl substances  
 PFOA: Perfluorooctanoic acid PFOS : Perfluorooctanesulfonic acid  
 PSW: Public Supply Well  
 PGCTL: Provisional Groundwater Cleanup Target Level (PFOA+PFOS=70 nanograms per Liter [ng/L])  
 PSCTL: Provisional Soil Cleanup Target Level  
 HAL: Health Advisory Level (PFOA+PFOS=70 ng/L)  
 FDOH: Florida Department of Health SIS: FDEP Site Investigation Section  
 ug/Kg: micrograms per Kilogram



ID	PFAS State Lead Sites
1	Lee Brothers Holsberry C&D
2	Omni Vest Landfill
3	Saufley C&D Facility
4	Beggs Lane / FDC Holdings
5	Former West Florida Scrap
6	Eagle Picher Industries
7	960 North Market Street
8	Washac Industries
9	Technitronics
10	Pharmco Laboratories
11	Skippers
12	Satellite Archery
13	118th Avenue Landfill
14	Reliable Circuits
15	Kenbar Electroplating
16	Florida Superior Plating
17	Palm River Road VOC Plume
18	Revivation & Gulf Coast Metal Finishing, Inc.
19	Musselman Steel Corp
20	Lakeland Tanning Site
21	Tortuga, Inc.
22	Spindrift Whogas, Inc.
23	Upsilon Davis



**23 State-lead sites**

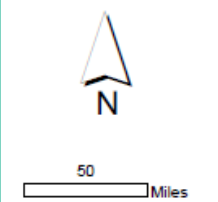
- Include: Chemical manufacturer, industrial solvent use, electroplater, and landfills;
- Groundwater sampled from 2 monitor wells per site for PFOA/PFOS;
- Current data: 10 sites > PFOA + PFOS Provisional GCTL; 10 sites < PFOA + PFOS Provisional GCTL;
- 3 are awaiting data analysis;
- DEP has requested DOH assistance with private well survey for sites > Provisional GCTL.

**Next Steps:**

- Awaiting results of DOH well surveys;
- Conduct additional sampling to determine source(s) at sites > Provisional GCTL.

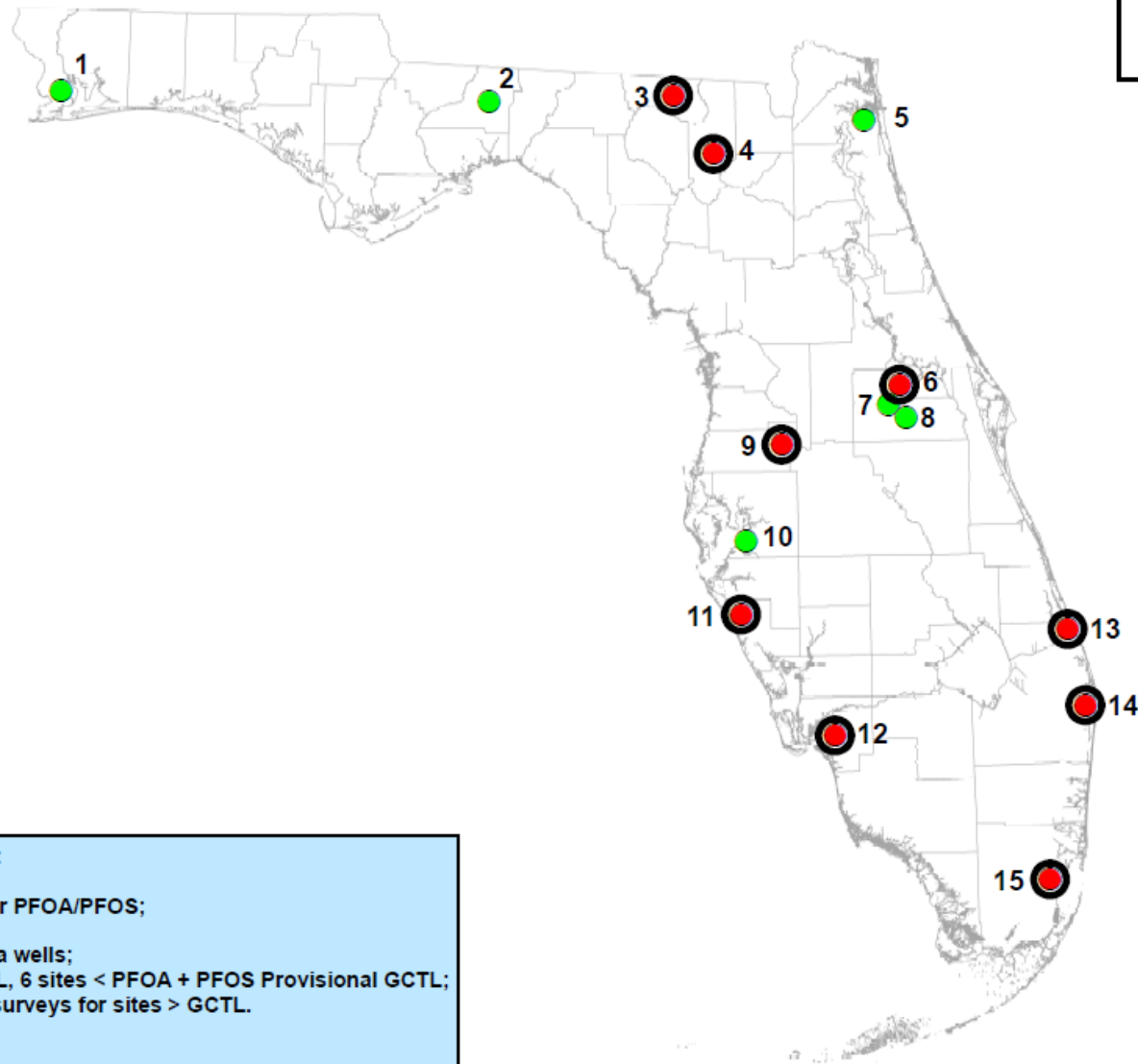
Florida State Lead Sites PFAS Sample Results  
 With Associated Florida Department of Health  
 Community Well Survey Sample Results  
 As of September 11, 2019

PFAS: Per- and polyfluoroalkyl substances  
 PFOA: Perfluorooctanoic acid  
 PFOS: Perfluorooctanesulfonic acid  
 PCTL: Provisional Cleanup Target Level  
 HAL: Health Advisory Level  
 FDOH: Florida Department of Health





ID	Dry Cleaner
1	Vick's Cleaners
2	Randolph's Dry Cleaner
3	Jasper Laundry and Dry Cleaner
4	Moses Cleaners
5	Former Sages Dry Cleaners
6	Celebrity Dry Cleaners, Inc.
7	Nanak Cleaners
8	Dryclean World
9	Touch of Quality Dry Cleaners
10	Touch of Class
11	North Trail Laundryland
12	Dolphin Fabricare
13	Classic Cleaners
14	Cinderella Cleaners
15	International Professional



● < PFOA+PFOS Provisional CTL  
● > PFOA+PFOS Provisional CTL

○ FDOH Results < HAL  
○ FDOH Results > HAL  
○ Awaiting FDOH Results  
○ Yet to be Sampled by FDOH

**Drycleaning Solvent Cleanup Program (DSCP) Pilot Test**

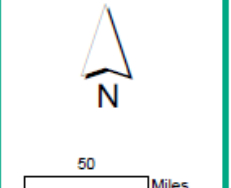
- 15 DSCP sites selected;
- Groundwater sampled from 2 monitor wells per site for PFOA/PFOS;
  - Selected sites have long history of monitoring;
  - Selected monitor wells are considered source area wells;
- Current data: 9 sites > PFOA + PFOS Provisional GCTL, 6 sites < PFOA + PFOS Provisional GCTL;
- DEP has requested DOH assistance with private well surveys for sites > GCTL.

**Next Steps:**

- Awaiting results of DOH well surveys;
- Conduct additional monitor well sampling for sites > Provisional GCTL.

**Florida Drycleaning Solvent Cleanup Program**  
**PFAS Sample Results With Associated**  
**Florida Department of Health**  
**Community Well Survey Sample Results**  
 As of September 11, 2019  
 Florida Department of Environmental Protection

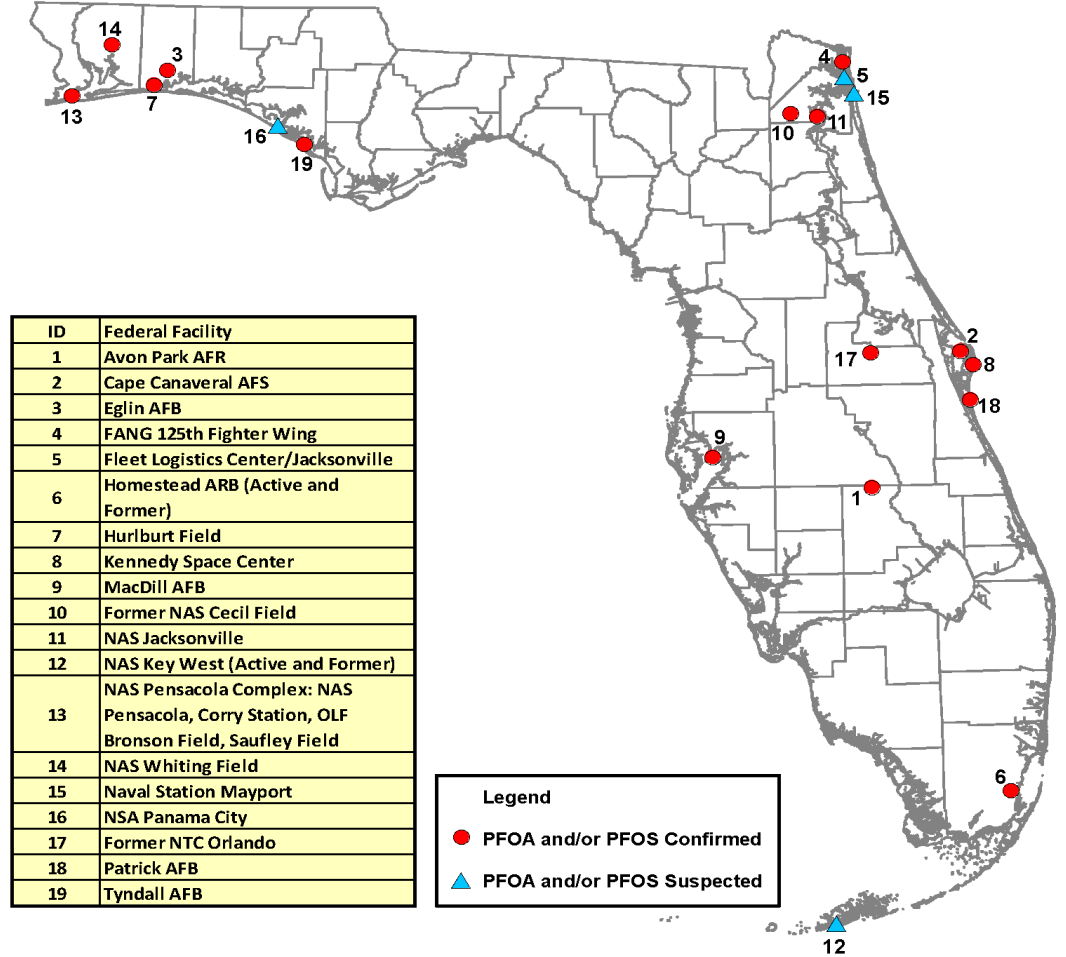
PFAS: Per- and polyfluoroalkyl substances  
 PFOA: Perfluorooctanoic acid  
 PFOS: Perfluorooctanesulfonic acid  
 PCTL: Provisional Cleanup Target Level  
 HAL: Health Advisory Level  
 FDOH: Florida Department of Health



# PFAS at Federal Facilities

Figure from DEP webpage depicting confirmed and suspected locations with PFOA and/or PFOS.

<https://floridadep.gov/waste/waste-cleanup/content/pfas-investigation-federal-facilities>



The information contained herein is based upon reports submitted to the Department. There may also be other locations in the State contaminated with PFOS/PFOA that have not yet been reported to the Department.

Updated July 29, 2019