



PROD 7577

Department of Energy  
Washington, DC 20585

March 20, 2018

Mr. David Seely  
U.S. Environmental Protection Agency  
Region 5 (SR-6J)  
77 W. Jackson Blvd.  
Chicago, IL 60604-3590

Ms. Laura Hafer  
Ohio Environmental Protection Agency  
401 East 5th Street  
Dayton, Ohio 45402

Dear Mr. Seely and Ms. Hafer:

Subject: Transmittal of the Second Deliverable Required in the Fourth Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Five-Year Review Report for the Fernald Preserve

- References:
- 1) Letter, S. Smiley to D. Seely and T. Schneider, "Transmittal of the Responses to Environmental Protection Agency and Ohio Environmental Protection Agency Comments on the Draft *Fourth Five-Year Review Report for the Fernald Preserve* and the Final *Fourth Five-Year Review Report for the Fernald Preserve*," dated August 25, 2016.
  - 2) Letter, S. Smiley to D. Seely and T. Schneider, "Transmittal of Change Pages, Final Fourth Five-Year Review Report for the Fernald Preserve," dated December 22, 2016.
  - 3) Letter, S. Smiley to D. Seely and T. Schneider, "Transmittal of Draft Perfluorinated Compound Groundwater Screening Sampling and Analysis Plan, Fernald Preserve, Ohio," dated December 28, 2016.

This letter transmits the draft *Polyfluorinated Alkyl Substances Investigation Plan for the Fernald Preserve*. This document is intended to meet the second deliverable required in the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Fourth Five-Year Review Report for the Fernald Preserve (References 1 and 2).

The enclosed draft Investigation Plan is based on multiple meetings and discussions with U.S. Environmental Protection Agency (EPA) and Ohio EPA since submittal of the first CERCLA Five-Year Review Report deliverable, the draft *Perfluorinated Compound Groundwater Screening Sampling and Analysis Plan*, on December 28, 2016 (Reference 3). The EPA now refers to the perfluorinated compounds (PFC) as per- or poly-fluorinated alkyl substances (PFASs).



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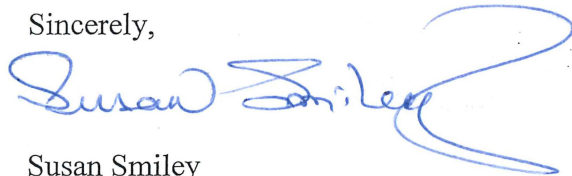
Based on information contained in the groundwater screening sampling plan and additional information in the enclosed investigation plan, PFASs are not a widespread issue at the Fernald Preserve. Furthermore, because of a lack of published groundwater sampling guidelines and a commercially available EPA-approved analytical method for the groundwater matrix, implementing the screening level sampling plan at this time would likely result in false positive results. These facts have been acknowledged by the EPA. Additionally, the two PFASs briefly addressed in the CERCLA Five-Year Review, perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA), are based on a non-enforceable EPA drinking water health advisory. The EPA has been in the process of making a regulatory determination on whether to initiate development of a national primary drinking water regulation since approximately 2009.

The PFAS issue continues to evolve. The enclosed document was prepared to meet the intent of the second CERCLA Five-Year Review Report deliverable for the Fernald Preserve and recommends addressing any site-specific PFAS issues when these contaminants are regulated as MCLs during a future CERCLA Five-Year Review. The standard CERCLA Five-Year Review process ensures a scheduled, recurring review of past decisions occurs at each CERCLA site; this includes a review of new regulatory requirements that could have the potential to impact the protectiveness of a CERCLA remedy.

If you have any questions or require additional information, please call me at (513) 648-3333. Please send any correspondence to my attention at:

U.S. Department of Energy  
Office of Legacy Management  
10995 Hamilton-Cleves Hwy.  
Harrison, OH 45030

Sincerely,



Susan Smiley  
Fernald Preserve Site Manager  
DOE-LM-20.2

Enclosure

cc w/enclosure:  
S. Helmer, ODH  
L. Hafer, Ohio EPA (three copies of enclosure)  
Project Record File FER 115.02.05(A)

Mr. David Seely  
Ms. Laura Hafer  
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cc w/o enclosure:  
(electronic)

G. Hooten, DOE-LM  
B. Zimmerman, DOE-LM  
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K. Broberg, Navarro  
B. Hertel, Navarro  
J. Homer, Navarro  
K. Voisard, Navarro  
C. White, Navarro

**DRAFT**  
**Polyfluorinated Alkyl**  
**Substances (PFASs)**  
**Investigation Plan for the**  
**Fernald Preserve**

**March 2018**



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**ENERGY**

Legacy  
Management

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**Attachment**

Attachment A Draft DOE Responses to EPA Informal Comments, December 6, 2017, on the  
*Draft Perfluorinated Compound Groundwater Screening Sampling and  
Analysis Plan*

## Abbreviations

AFFF	aqueous film-forming foam
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
DOE	U.S. Department of Energy
EPA	U.S. Environmental Protection Agency
FTF	Fire Training Facility
GMA	Great Miami Aquifer
MCL	maximum contaminant level
MCLG	maximum contaminant level goal
mg/L	milligrams per liter
PFAS	polyfluorinated alkyl substance
PFC	polyfluorinated compound
PFOA	perfluorooctanoic acid
PFOS	perfluorooctane sulfonate

## 1.0 Background

### 1.1 CERCLA Five-Year Review Report and PFASs

At the February 2, 2016, Fernald Preserve regulatory meeting, the U.S. Environmental Protection Agency (EPA) verbally requested the U.S. Department of Energy (DOE) to address vapor intrusion pathways and the presence of fluorinated compounds in the draft fourth Fernald Preserve Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Five-Year Review Report (DOE 2016a). The draft fourth CERCLA Five-Year Review Report was scheduled to be submitted to the regulators in April 2016. Polyfluorinated alkyl substances (PFASs), formerly known as polyfluorinated compounds (PFCs), are a large group of chemicals of which perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA) are the two most prevalent in the environment.

PFOS and PFOA were included in the third drinking water contaminant candidate list, which is a list of unregulated contaminants that are known, or anticipated, to occur in public water systems and may require regulation under the Safe Drinking Water Act (EPA 2009). EPA subsequently published a Fact Sheet in March 2014 identifying PFOS and PFOA as emerging contaminants (EPA 2014). EPA established a provisional health advisory of 0.2 parts per billion (200 parts per trillion) PFOS and 0.4 parts per billion (400 parts per trillion) PFOA (EPA 2014).

The site's fourth CERCLA Five-Year Review indicated that vapor intrusion is not an issue at Fernald, but did identify that PFOS and PFOA could be present due to the fact that small volumes of aqueous film-forming foam (AFFF), which contains PFOS and PFOA, were used for fire training exercises at the former Fire Training Facility (FTF). As stated in the draft fourth Five-Year Review Report (DOE 2016a):

The Fernald Preserve environmental database does not contain analytical data for PFOS or PFOA. Because these chemicals may have been used in fire suppressant material discharged at the former Fire Training Facility, a limited sampling investigation is proposed to determine if the chemicals are present at residual levels in surface water within the footprint of the former Fire Training Facility. If results from this limited investigation exceed the EPA provision health advisory for these chemicals (EPA 2014), additional remedial actions may be necessary.

In May 2016, EPA published a health advisory for PFOA and PFOS for drinking water systems (EPA 2016a). Health advisories are developed by EPA to provide information on contaminants that may cause human health effects and are known to occur in drinking water. EPA's health advisories are nonenforceable and nonregulatory. EPA established the health advisory level at a concentration of 0.07 parts per billion (70 parts per trillion) for the combined concentration when both PFOA and PFOS are present in drinking water. These concentrations are orders of magnitude lower than regulatory levels for most groundwater contaminants. EPA published a Fact Sheet concerning the PFOA and PFOS drinking water health advisories in May 2016 (EPA 2016b) and published an updated Fact Sheet on this in November 2016 (EPA 2016c).

The final fourth CERCLA Five-Year Review Report was approved in September 2016 and required two deliverables: (1) a PFC groundwater screening sampling plan, to include a schedule



for sampling and reporting, by December 31, 2016; and (2) a comprehensive PFC investigation plan for regulatory review by March 31, 2018 (DOE 2016b).

## **1.2 Draft Perfluorinated Compound Groundwater Screening Sampling Plan**

On December 28, 2016, DOE submitted the *Draft Perfluorinated Compound Groundwater Screening Sampling and Analysis Plan* (DOE 2016c) to the regulators to fulfill the first deliverable requirement in the fourth CERCLA Five-Year Review Report. The schedule in the plan identified a need for review comments within 30 days of regulator receipt of the plan in order to meet the schedule for the second deliverable. The plan's schedule also included sampling dates beginning in March 2017 to support the second deliverable. Based on the information presented in the draft PFC sampling plan, PFASs at concentrations above the recently published health advisory for drinking water systems of 70 parts per trillion for the combined PFOA and PFOS level are not anticipated to be present in the Fernald Preserve site groundwater as a result of activities conducted at the site. Information from the sampling plan and additional key information is summarized below:

- Fernald used a very small volume of AFFF (less than 25 gallons) from 1976 to 1990. This is orders of magnitude lower than volumes used at military bases or produced by AFFF manufacturing facilities; PFASs concentrations at such locations have been detected in groundwater above the drinking water health advisory level.
- PFASs use at the Fernald site was exclusively for fire training purposes and occurred in just one area of the site, the fire training facility (FTF).
- Extensive soil remediation of the entire Fernald site was completed in 2006, with over 13,000 cubic yards of impacted soil removed from the FTF area alone. This equates to over 800 16-cubic yard truckloads. Given that the geochemical properties of PFASs are similar to the organic contaminants present at the FTF, it is reasonable to assume the soil remediation effort removed potential residual sources of PFASs as part of the sitewide CERCLA cleanup.
- On the basis of site geology (25–35 feet of surficial clay-rich glacial overburden deposits), hydrogeology, and PFAS transport properties, the potential pathway for PFAS contaminants to reach the Great Miami Aquifer (GMA) is the same pathway that uranium contamination would have taken to reach the GMA via surface water to areas where the surface waters come into direct contact with the underlying permeable GMA sand and gravel (i.e., areas where the low-permeability glacial overburden is absent).
- Since the late 1990s, the uranium plume in the GMA has been undergoing active remediation. Through 2017, this effort resulted in the extraction of more than 46 billion gallons of groundwater while providing containment of the plume. This volume of water equates to a column of water nearly 140 feet deep over the entire Fernald Preserve.
- In the unlikely event that significant concentrations of PFAS contaminants from the FTF found their way to the GMA prior to remediation of the FTF area, the PFAS have been and are being contained and removed from the aquifer along with the uranium plume since 1996.
- A public water supply funded in part by DOE has been in place since 1996 in the off-property areas affected by the uranium plume in the GMA.

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- Groundwater as a drinking water source is restricted in areas affected by the Fernald Preserve uranium plume, with institutional controls in place to ensure this restriction. This restriction will remain in place until groundwater remediation is complete, currently predicted to be in the late 2030s.
- Elevated sample turbidity, typical of Fernald groundwater samples collected from multi-channel monitoring wells, may result in difficulty meeting the published detection limits.
- Low concentrations of PFASs are ubiquitous in the environment due to their use in many widely used consumer products (EPA 2016c), including standard environmental sampling and laboratory equipment. This leads to an increased likelihood of false positives.
- The EPA PFOA and PFAS health advisory is established for drinking water systems and is nonregulatory and not enforceable (EPA 2016c).

### 1.3 Interaction with EPA

Following submittal of the draft PFC sampling plan in December 2016, the PFAS issue continued to be discussed on the following regulatory meeting dates (as well as during several additional phone conversations during 2017):

January 25, 2017

April 19, 2017

June 15, 2017

August 17, 2017

October 25, 2017

December 6, 2017

March 14, 2018

Following the December 6, 2017, regulatory meeting, EPA submitted informal comments to DOE on the groundwater screening sampling plan via electronic mail (EPA 2017). The content of the electronic mail, which included EPA's comments, and DOE's draft response to the EPA comments are presented in Attachment A. Given the low probability that PFAS contamination is an issue at the Fernald Preserve based on the information provided above, and the significant potential for sampling data to yield false positive or false negative detections, EPA has acknowledged a delay in implementing the screening sampling effort is warranted until PFAS sampling and analysis methods are further developed.

This document meets the intent of the second deliverable identified in the fourth CERCLA Five-Year Review Report to document the discussions and actions taken since submittal of the *Draft Perfluorinated Compound Groundwater Screening Sampling and Analysis Plan* and to document DOE's current position concerning PFASs.

## 2.0 PFAS Health Advisories and Maximum Contaminant Levels

As stated in the *Fact Sheet, PFOA and PFOS Drinking Water Health Advisories* (EPA 2016c), the PFOA and PFOS health advisory was established for drinking water systems and is nonregulatory and not enforceable. The EPA Health Advisory Program publishes concentrations of drinking water contaminants that "serve as the informal technical guidance for unregulated

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drinking water contaminants to assist federal, state, and local officials, and managers of public or community water systems in protecting public health as needed” (EPA 2012).

The published health advisory tables contain over 100 chemical, radiological, and biological drinking water standards in the form of nonenforceable concentrations of drinking water contaminants, maximum contaminant level goals (MCLGs), as well as enforceable maximum contaminant levels (MCLs). As documented in the site’s Operable Unit 5 Record of Decision (DOE 1996), MCLs were utilized to determine the final Fernald groundwater remediation levels (FRLs). During each Fernald Preserve CERCLA Five-Year Review, MCLs are reviewed to determine if any revisions to FRLs are warranted. As an example, the health advisory program states the MCLG for the main site contaminant, uranium, is 0 milligrams per liter (mg/L), but the enforceable MCL for uranium (promulgated in 2000) is 0.03 mg/L, which is the FRL for uranium in groundwater for the Fernald Preserve. The proposed MCL of 0.02 mg/L was adopted as the groundwater FRL when the Operable Unit 5 Record of Decision was signed in 1996; however, through the CERCLA Explanation of Significant Differences process, the FRL was changed to the MCL of 0.03 mg/L in 2001 (DOE 2001).

EPA has not established national primary drinking water regulations for PFOA and PFOS and is currently evaluating over 100 chemicals, including PFOA and PFOS, in accordance with the Safe Drinking Water Act. EPA is currently collecting data to assess the occurrence of PFOA and PFOS in drinking water and will consider this information along with the peer-reviewed health effects assessments to make a regulatory determination on whether to initiate the process to develop a national primary drinking water regulation (EPA 2018).

### 3.0 Conclusion

EPA has stated that there is a low probability that PFAS contamination is present in the groundwater as a result of activities at the Fernald Preserve. Based on the information provided in Section 1.2, DOE will revisit the PFAS issue when these contaminants are regulated as MCLs. The standard CERCLA Five-Year Review process ensures a scheduled, recurring review of past decisions occurs at each CERCLA site, including a review of new regulatory requirements that could have the potential to impact the protectiveness of a CERCLA remedy.

### 4.0 References

DOE (U.S. Department of Energy), 1996. *Record of Decision for Remedial Actions at Operable Unit 5*, 7478 U 007 501.4, Final, Fluor Fernald, Cincinnati, Ohio, January.

DOE (U.S. Department of Energy), 2001. *Explanation of Significant Differences for Operable Unit 5*, Final, Fernald Environmental Management Project, Fernald Area Office, Cincinnati, Ohio, October.

DOE (U.S. Department of Energy), 2016a. *Fourth Five-Year Review Report for the Fernald Preserve*, LMS/FER/S13683, Office of Legacy Management, Cincinnati Ohio, DRAFT, April.

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DOE (U.S. Department of Energy), 2016b. *Fourth Five-Year Review Report for the Fernald Preserve*, LMS/FER/S13683, Office of Legacy Management, Cincinnati Ohio, September.

DOE (U.S. Department of Energy), 2016c. *Draft Perfluorinated Compound Groundwater Screening Sampling and Analysis Plan*, LMS/FER/S15292, December.

EPA (U.S. Environmental Protection Agency), 2009. "Drinking Water Contaminant Candidate List 3-Final," Federal Register Notice, [www.federalregister.gov/articles/2009/10/08/E9-24287/drinking-water-contaminant-candidate-list-3-final](http://www.federalregister.gov/articles/2009/10/08/E9-24287/drinking-water-contaminant-candidate-list-3-final).

EPA (U.S. Environmental Protection Agency), 2012. 2012 Edition of the Drinking Water Standards and Health Advisories, April.

EPA (U.S. Environmental Protection Agency), 2014. *Emerging Contaminants, Perfluorooctane Sulfonate (PFOS) and Perfluorooctanoic Acid (PFOA)*, March.

EPA (U.S. Environmental Protection Agency), 2016a. *Drinking Water Health Advisory for Perfluorooctanoic Acid (PFOA)*, EPA 822-R-16-005, May.

EPA (U.S. Environmental Protection Agency), 2016b. *Fact Sheet, PFOA & PFOS Drinking Water Health Advisories*, May.

EPA (U.S. Environmental Protection Agency), 2016c. *Fact Sheet, PFOA & PFOS Drinking Water Health Advisories*, EPA 800-F-16-003, November.

EPA (U.S. Environmental Protection Agency), 2017. Electronic Mail, *Fernald-Draft Perfluorinated Compound Groundwater Screening Sampling and Analysis Plan*, D. Seely to S. Smiley, December 7, 2017.

EPA (U.S. Environmental Protection Agency), 2018. "Per- and Polyfluoroalkyl Substances (PFASs): What EPA is Doing," <https://www.epa.gov/pfas/and-polyfluoroalkyl-substances-pfass-what-epa-doing>, February 26, 2018.

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**Attachment A**

**Draft DOE Responses to EPA Informal Comments,  
December 6, 2017  
on the  
*Draft Perfluorinated Compound Groundwater Screening Sampling  
and Analysis Plan***

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### DOE Response to EPA Comments

**Email:** David Seely (EPA) to Sue Smiley (DOE)

**Subject:** Fernald – Draft Perfluorinated Compound Groundwater Screening Sampling and Analysis Plan

**Dated:** December 6, 2017

#### Email Text:

U.S. Department of Energy (DOE)'s Fernald Preserve Five-Year Review (FYR) August 2016 Report identified the need to evaluate the potential for Per- or Polyfluorinated Alkyl Substances (PFAS or PFCs as stated in the FYR) may have been used and potentially released into the environment due to the use of aqueous film-forming foam (AFFF) for fire training exercises at the former Fire Training Facility (FTF). The FYR identified a milestone date of December 31, 2016 for DOE to submit a groundwater screening sampling plan for regulator review and a subsequent date of March 31, 2018 for the submittal of a comprehensive investigation plan. Although not clearly stated in the FYR, the submittal of the comprehensive investigation plan is contingent upon the results of the screening effort. DOE submitted the Draft Per fluorinated Compound Groundwater Screening Sampling and Analysis Plan on December 28, 2016 meeting the initial milestone.

DOE and U.S. Environmental Protection Agency (EPA) subsequently held multiple discussions regarding the path forward for implementing the screening sampling effort. EPA noted significant uncertainties with environmental sampling and analysis for PFAS constituents and their potential impacts on the screening evaluation process. EPA also acknowledged there were no EPA-approved laboratory analyses methods currently available at that time. Given the low probability that PFAS contamination was a wide-spread issue at the Fernald Preserve based upon DOE's documentation of use of AFFF in relatively low volumes (e.g. < 100 gals) and the significant potential for sampling data resulting in false positive or false negative detections, EPA acknowledge a delay in the implementation of the screening sampling effort was warranted until PFAS sampling and analyses were further developed.

Since this time EPA Region 5's Central Regional Laboratory has developed laboratory analysis methods for environmental samples. Additionally, two ASTM methods (ASTM Methods D7968-17a and D7979-17) have become available and are attached to this email.

EPA Region 5 held an internal meeting among our Quality Assurance and Laboratory experts, and a consensus was reached and determined that the ASTM methods included sufficient Quality Assurance/Quality Controls (QA/QC) protocols and are considered acceptable for environmental samples.

Given that reliable methods are now available, EPA believes the screening sampling effort can proceed once the plans are finalized. EPA is providing the following general comments on DOE's draft plan to document our concerns.

#### **General**

1. **Commenting Organization:** EPA

**Comment:** The standard nomenclature for referencing these contaminants has changed from "PFCs" to "PFASs" or per- or polyfluoroalkyl substances. Therefore the generic reference within this document should be changed from "PFCs" to "PFASs".



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**Response:** DOE understands that the environmental community is focusing on using consistent, updated terminology for this complex issue.

**Action:** Any documents developed in the future will utilize updated terminology as the issue continues to evolve and EPA guidance is published.

2. **Commenting Organization:** EPA

**Comment:** The screening plan should either formally amend the approved Quality Assurance Project Plan (QAPP) to include procedures for PFASs or provide a stand-alone QAPP consistent with the Uniform Federal Policy for Quality Assurance Project Plans, 2005. The plan as submitted does not appear to do either. The policy agreed to by EPA and DOE can be found at <https://www.epa.gov/fedfac/assuring-quality-federal-cleanups>. Development of a stand-QAPP may require less effort and would likely streamline the review and approval process.

**Response:** DOE did not utilize the Uniform Federal Policy for Quality Assurance Project Plans (UFP-QAPP) during development of the current *Fernald Quality Assurance Project Plan* (FPQAPP [DOE 2014]) because DOE Headquarters has never formally adopted the policy. As stated in the undated *Frequently Asked Questions: Uniform Federal Policy for Quality Assurance Project Plans* on the EPA website listed above, DOE participated in the development of the UFP-QAPP, but has not yet adopted the policy.

The sampling plan was developed in compliance with the currently approved FPQAPP (DOE 2014). The lack of EPA-approved sampling and analytical methodology specific to PFASs hinders the ability of DOE to effectively incorporate PFAS issues into the QAPP or the sampling plan. Because of the lack of published standards, DOE chose to submit the sampling plan without revising the FPQAPP and provided detailed sampling requirements in Section 3.0 and Appendix A of the draft sampling plan. EPA has not yet provided detailed comments on the content of these sections.

**Action:** No DOE action is required at this time. DOE will respond to any specific comments EPA provides on the sampling requirements specified in Section 3 and Appendix A of the draft sampling plan.

### Detailed

3. **Commenting Organization:** EPA

**Section:** 1.0      **Page:** 1, second to last sentence

**Comment:** It should be noted that there are many documented environmental impacts due to the release of PFASs into the environment beyond just those stated. Air deposition of PFAS air emissions, PFAS releases from wastes associated with stain or waterproofing materials, wastewater discharges, and releases from land-applied PFAS impacted waste water treatment plant sludge are just a few types of releases known to contaminate public or private drinking water supplies. EPA suggests this language be broadened to include other known types of significant releases or delete the portion of the sentence beginning with “, and the main environmental impacts ...”

**Response:** DOE agrees with the comment, but will remove the entire sentence.

**Action:** DOE will remove the entire sentence.

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4. **Commenting Organization:** EPA  
**Section:** 2.1 **Page:** 2, last paragraph  
**Comment:** Clarify whether or not the activities described in this paragraph were conducted at Fernald or are just illustrative of uses at military facilities.  
**Response:** DOE agrees with the comment.  
**Action:** The first sentence will be modified to read, “The AFFF stored at the Fernald site was dispositioned...”
5. **Commenting Organization:** EPA  
**Section:** 2.7 **Pages:** 6, 7  
**Comment:** The plan appears to limit the selection of sampling locations to existing monitoring wells. However the activities or sources of the contamination are over 1000 feet away from the nearest sampling location. Little information is presented to support the selection of these wells as representative of whether PFASs were released to the groundwater due to the activities at the Former Fire Training Facility or Former Garage Area. Additional information should be provided to support the appropriateness of the proposed locations versus establishing new monitoring locations.  
**Response:** DOE disagrees with this comment. The plan provides information concerning the selection of sampling locations that includes geology (Section 2.3), hydrogeology (Section 2.4), transport properties of PFOS and PFOA (Section 2.5), and the conceptual model for potential transport of PFCs to the GMA (Section 2.6). The rationale behind the selection of the five sampling locations in the plan (based on the information presented in Sections 2.3–2.6) is presented in Section 2.7.  
  
During the April 19, 2017, Regulator Meeting held at the Fernald Preserve, a walkdown of both the Former Fire Training Facility and the Former Garage Area with EPA and Ohio EPA was completed to further assist with explaining the site conceptual model.  
**Action:** No DOE action is required at this time. EPA to clarify what additional information is desired.
6. **Commenting Organization:** EPA  
**Section:** 3.0 **Pages:** 7, 8  
**Comment:** The information in this section should be presented in a format consistent with Comment #2.  
**Response:** DOE disagrees with the comment. The current approved FPQAPP specifies the content of individual sampling plans. The sampling plan was developed to comply with the current FPQAPP.  
**Action:** No action required.
7. **Commenting Organization:** EPA  
**Section:** 3.0 **Pages:** 7, 8  
**Comment:** As noted above, two ASTM methods (ASTM Methods D7968-17a and D7979-17) have become available and are attached to this email. EPA Region 5 held an internal meeting among our Quality Assurance and Laboratory experts, and a consensus was reached and determined that the ASTM methods included sufficient Quality Assurance/Quality Controls (QA/QC) protocols and are considered acceptable for environmental samples. Additionally if DOE prefers, the offer to have EPA Central Regional Laboratory (CRL) conduct the analyses may be still available, subject to

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laboratory capacity at the time of sampling. If this option is chosen, EPA will forward documentation for CRL methods for use within this plan.

**Response:** ASTM D7968 is an analytical method for soil which does not apply to the issue. ASTMs D7979-15 and D7979-16 were available when DOE was preparing the draft sampling plan; however, DOE has not successfully identified a commercial lab that analyzes groundwater samples using any version of the ASTM. DOE proposed the Modified Method 537 in the sampling plan because it is commercially available and was utilized by the contractor who collected samples at the Wright-Patterson Air Force Base based on the information provided by Ohio EPA in the Summer of 2016.

Regarding use of the EPA CRL, DOE believes there are too many issues to pursue the option of having the EPA CRL analyze the samples. DOE's commercial laboratory is equipped and licensed to safely dispose of the uranium-contaminated sample waste. The sample waste will not only be liquid waste, since it is expected that a fair amount of sediment will settle from the highly turbid samples and that sediment will need proper disposal.

While the lack of an acceptable commercially available analytical method is a concern, DOE is also concerned with the lack of published sampling protocols and data validation guidelines.

Development of a sample collection methodology is important so that samples are collected in a manner that eliminates cross-contamination. PFASs are widely used in a multitude of environmental and consumer products. These products are often not labeled as containing PFASs. Because of the lack of published sampling protocol, along with the widespread occurrence of PFASs in environmental products, consumer products, groundwater, and surface water, DOE is concerned with the high potential for false positive data resulting from collection of samples before the environmental industry and regulators can produce proper protocols to compare groundwater data against a drinking water health advisory that is orders of magnitude lower than regulatory levels for most groundwater contaminants.

DOE validates all environmental data in accordance with EPA guidelines. EPA does not currently have data validation guidelines specific to PFAS analysis. DOE understands that the industry is currently using EPA's general guidelines for validating organic data (EPA 2016c), specific PFAS method requirements, and recently published quality control requirements in the *Quality Systems Manual* (DOE 2017).

**Action:** No action required.