



## Department of Energy

Washington, DC 20585

December 22, 2016

PROD 7541

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

Mr. Thomas A. Schneider  
Ohio Environmental Protection Agency  
401 East 5th Street  
Dayton, Ohio 45402

Dear Mr. Seely and Mr. Schneider:

Subject: Transmittal of Change Pages, Final Fourth Five-Year Review Report for the Fernald Preserve

- Reference: 1) Telephone call, D. Seely to S. Smiley on September 8, 2016, Request Changes to Summary Form.
- 2) Electronic Mail, K. Voisard to D. Seely, Changes to CERCLA Five Year, dated September 8, 2016.
- 3) Letter, S. Smiley to D. Seely and T. Schneider, Transmittal of 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.
- 4) Telephone call, D. Seely to S. Smiley on October 12, 2016, Format of Formal Submittal of Change Pages.
- 5) Telephone call, S. Smiley to D. Seely on December 22, 2016, Formal Submittal of Change Pages and Electronic copy of Final Fourth Five-Year Review Report.

This letter formally transmits the Change Pages for the Fourth Five-Year Review Report for the Fernald Preserve. These revisions were the result of discussions between Mr. Seely (United States Environmental Protection Agency [EPA]), me, and Navarro staff (References 1 and 2, respectively). These discussions occurred after formal submittal of the final Fourth Five-Year Review Report to EPA and Ohio EPA (Reference 3). While no revisions were made to the text contained on pages *xi*, 47 and 50, these pages are included with the enclosed Change Pages because pages *xi*, 47 and 50 occur on the reverse side of a revised page. The footers on the enclosed Change Pages now reflect the September changes to the August submittal. These changes to the footers are the result of a follow-up telephone conversation on October 12, 2016 (Reference 4) regarding formal transmittal of the Change Pages to EPA.



Mr. David Seely  
Mr. Thomas Schneider  
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This letter and the enclosed Change Pages were prepared pursuant to a telephone conversation with EPA on December 22, 2016 (Reference 5) and will ensure the U.S. Department of Energy (DOE), EPA and Ohio EPA record files are complete for the final Fourth Five-Year Review Report for the Fernald Preserve. In addition, and in the interest of ensuring all parties have an electronic copy of the entire Fourth Five-Year Review Report as approved by EPA in September 2016, I will send a copy (disk) of the complete report to EPA and Ohio EPA by no later than December 31, 2016. That electronic file will include the above referenced Change Pages; however, those pages will not include the revision bars or modified footers that appear on the enclosure to this letter today. The DOE, EPA and Ohio EPA should use that electronic file for posting of the final report to organization-internal and/or public websites, as appropriate.

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**

Susan Smiley  
Fernald Preserve Site Manager  
DOE-LM-20.2

Digitally signed by SUSAN SMILEY  
DN: c=US, o=U.S. Government,  
ou=Department of Energy,  
cn=SUSAN SMILEY,  
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Enclosure

cc w/enclosure:

K. Broberg, Navarro  
S. Helmer, ODH  
B. Hertel, Navarro  
J. Homer, Navarro  
G. Hooten, DOE  
T. Schneider, Ohio EPA (three copies of enclosure)  
K. Voisard, Navarro  
C. White, Navarro  
re-ohio  
Administrative Records (M. Korte)

cc w/o enclosure:

(electronic)  
T. Smith Taylor, DOE

## Five-Year Review Summary Form

SITE IDENTIFICATION		
<b>Site Name: Feed Materials Production Center</b>		
<b>EPA ID: OH6890008976</b>		
<b>Region: 5</b>	<b>State: OH</b>	<b>City/County: Hamilton and Harrison/Butler and Hamilton</b>
SITE STATUS		
<b>NPL Status: Final</b>		
<b>Multiple OUs? Yes</b>	<b>Has the site achieved construction completion? Yes</b>	
REVIEW STATUS		
<b>Lead agency: Other Federal Agency</b> If "Other Federal Agency" was selected above, enter Agency name: U.S. Department of Energy		
<b>Author name (Federal or State Project Manager): Susan Smiley</b>		
<b>Author affiliation: U.S. Department of Energy Office of Legacy Management</b>		
<b>Review period: September 16, 2015–December 31, 2015</b>		
<b>Date of site inspection: March 12, 2015; June 3, 2015; September 3, 2015; December 8, 2015</b>		
<b>Type of review: Statutory</b>		
<b>Review number: 4</b>		
<b>Triggering action date: 9/13/2011</b>		
<b>Due date (five years after triggering action date): 9/13/2016</b>		

### Five-Year Review Summary Form (continued)

The table below is for the purpose of the summary form and associated data entry and does not replace the two tables required in Section VIII and IX by the FYR guidance. Instead, data entry in this section should match information in Section VII and IX of the FYR report.

#### Issues/Recommendations

<b>OU(s) without Issues/Recommendations Identified in the Five-Year Review:</b>
1, 2, 3, and 4

#### Issues and Recommendations Identified in the Five-Year Review:

<b>OU(s): 5</b>	<b>Issue Category: Monitoring</b>			
	<b>Issue:</b> Presence or absence of perfluorinated compounds (PFCs) including perfluorooctane sulfate (PFOS) or perfluorooctanoic acid (PFOA) due to the use of fire fighting suppression is unknown.			
<b>OU(s): 5</b>	<b>Recommendation:</b> 1) Submit for regulator review, a PFC (PFOA and PFOS) groundwater screening sampling plan to include a schedule for sampling and reporting. 2) Submit a comprehensive PFC investigation plan for regulator review.			
<b>Affect Current Protectiveness</b>	<b>Affect Future Protectiveness</b>	<b>Implementing Party</b>	<b>Oversight Party</b>	<b>Milestone Date</b>
No	Yes	Federal Facility	EPA/State	1) December 31, 2016 2) March 31, 2018.

#### Issues and Recommendations Identified in the Five-Year Review:

<b>OU(s): 5</b>	<b>Issue Category: Operations and Maintenance</b>			
	<b>Issue:</b> Soils sitewide have been certified to meet FRLs established in the OU5 ROD, with the exception of the infrastructure footprint that supports aquifer restoration.			
<b>OU(s): 5</b>	<b>Recommendation:</b> Certify soil following removal of aquifer infrastructure including subgrade utility corridors and associated buildings.			
<b>Affect Current Protectiveness</b>	<b>Affect Future Protectiveness</b>	<b>Implementing Party</b>	<b>Oversight Party</b>	<b>Milestone Date</b>
No	Yes	Federal Facility	EPA/State	2040

To add additional issues/recommendations here, copy and paste the above table as many times as necessary to document all issues/recommendations identified in the FYR report.

## Five-Year Review Summary Form (continued)

### Protectiveness Statement(s)

*Include each individual OU protectiveness determination and statement. If you need to add more protectiveness determinations and statements for additional OUs, copy and paste the table below as many times as necessary to complete for each OU evaluated in the FYR report.*

<i>Operable Unit:</i> 1	<i>Protectiveness Determination:</i> Protective
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*Protectiveness Statement:*

The remedy at OU1 is protective of human health and the environment. All known waste materials have been removed and disposed of permanently. The underlying soils have been certified to meet established final remediation levels (FRLs) pursuant to the OU5 ROD. Institutional Controls are specified in Section 6.1.6 and access controls are in place and effective in ensuring that the footprint of OU1 is used in accordance with the land use objectives and FRLs supporting those land use objectives.

<i>Operable Unit:</i> 2	<i>Protectiveness Determination:</i> Protective
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*Protectiveness Statement:*

The remedy at OU2 is protective of human health and the environment. All waste materials have been removed and disposed of permanently. The underlying soils have been certified to meet established FRLs pursuant to the OU5 ROD. Institutional controls and access controls are in place and effective in ensuring that the footprint of OU2 is used in accordance with the land use objectives and FRLs supporting those land use objectives. The cap and liner systems of the On-Site Disposal Facility (OSDF) are functioning as designed and are successfully isolating the waste materials. The volume of leachate generated from the OSDF is continuing to decline, and the leachate is being effectively collected and treated to minimize impacts to human health and the environment.

<i>Operable Unit:</i> 3	<i>Protectiveness Determination:</i> Protective
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*Protectiveness Statement:*

The remedy at OU3 is protective of human health and the environment. All waste materials and building debris have been removed and disposed of permanently. The underlying soils have been certified to meet established FRLs pursuant to the OU5 ROD. Institutional controls and access controls are in place and effective in ensuring that the footprint of OU3 is used in accordance with the land use objectives and FRLs supporting those land use objectives.

## Five-Year Review Summary Form (continued)

<i>Operable Unit:</i> 4	<i>Protectiveness Determination:</i> Protective
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*Protectiveness Statement:*

The remedy at OU4 is protective of human health and the environment. All waste materials have been removed and disposed of permanently. The underlying soils have been certified to meet established FRLs pursuant to the OU5 ROD. Institutional controls and access controls are in place and effective in ensuring that the footprint of OU4 is used in accordance with the land use objectives and FRLs supporting those land use objectives.

<i>Operable Unit:</i> 5	<i>Protectiveness Determination:</i> Short-term Protective
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*Protectiveness Statement:*

The remedy at OU5 is currently protective of human health and the environment because exposure pathways that could result in unacceptable risks are being managed. Soils sitewide have been certified to meet FRLs established in the OU5 ROD, with the exception of the infrastructure footprint that supports aquifer restoration. Current groundwater monitoring data indicate that the groundwater remedy is functioning as required to achieve groundwater FRLs. The cap and liner systems of the On-Site Disposal Facility (OSDF) are functioning as designed and are successfully isolating the waste materials. The volume of leachate generated from the OSDF is continuing to decline, and the leachate is being effectively collected and treated to minimize impacts to human health and the environment. Institutional controls as specified in Section 6.1.6 and access controls are in place and effective in ensuring that the footprint of OU5 is used in accordance with the land use objectives and FRLs supporting those land use objectives. However, in order for the remedy to be protective in the long-term, the following actions need to be taken to ensure protectiveness: 1) perform an investigation of the site to evaluate the potential for releases of PFCs and 2) certify soils associated with the aquifer restoration infrastructure footprint.



## Five-Year Review Summary Form (continued)

### Sitewide Protectiveness Statement

*Protectiveness Determination:*

Short-term Protective

*Protectiveness Statement:*

The remedy at the Fernald Preserve site is currently protective of human health and the environment because exposure pathways that could result in unacceptable risks are being managed. All waste materials generated during remediation have been removed and disposed of permanently. The underlying soils have been certified to meet established FRLs except soils beneath two facilities (Converted Advanced Wastewater Treatment facility and South Field Valve House) and subgrade utility corridors needed to support the ongoing groundwater remedy. Institutional controls and access controls are in place and effective in ensuring that the footprint of OUs 1, 2, 3, 4, and 5 are used in accordance with the established land use objectives and the FRLs that support those land use objectives. In addition, for OU5, current groundwater monitoring data indicate the groundwater remedy is functioning as required to achieve groundwater FRLs. The cap and liner systems of the OSDF are functioning as designed and are successfully containing waste materials. The volume of leachate generated from the OSDF is continuing to decline, and the leachate is being effectively collected and treated to minimize impacts to human health and the environment. Institutional controls as specified in Section 6.1.6 and access controls are in place and effective in ensuring that the footprint of OU5 is used in accordance with the land use objectives and FRLs supporting those land use objectives. However, in order for the remedy to be protective in the long-term, the following actions need to be taken to ensure protectiveness: 1) perform an investigation of the site to evaluate the potential for releases of PFCs and 2) certify soils associated with the aquifer restoration infrastructure footprint.

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## 8.0 Recommendations and Follow-Up Actions

Table 10. Recommendations and Follow-Up Actions

Issue	Recommendations and Follow-Up Actions	Party Responsible	Oversight Agency	Milestone Date	Affects Protectiveness (Y/N)	
					Current	Future
1	1.1 Continue annual well field shutdown to allow water levels to rebound.	DOE	EPA, Ohio EPA	Annual	N	N
	1.2 Determine need to change pump-and-treat configuration based on characterization data.	DOE	EPA, Ohio EPA	During routine aquifer remedy activities	N	N
	1.3 To address potentially ineffective plume flushing, determine what pumping rate changes may be beneficial.	DOE	EPA, Ohio EPA	During routine aquifer remedy activities	N	N
	1.4 Continue with aggressive well maintenance program and keep wells operating at design set points.	DOE	EPA, Ohio EPA	During routine aquifer remedy activities	N	N
2	Continue surface water sampling program with reductions.	DOE	EPA, Ohio EPA	During routine monitoring activities	N	N
3	Continue current debris management program.	DOE	EPA, Ohio EPA	Annual	N	N
4	4.1 Submit, for regulator review, a PFC (PFOA and PFOS) groundwater screening sampling plan to include a schedule for sampling and reporting.	DOE	EPA, Ohio EPA	December 31, 2016	N	Y
	4.2 Submit a comprehensive PFC (PFOA and PFOS) investigation plan for regulator review.	DOE	EPA, Ohio EPA	March 31, 2018	N	Y
5	Certify soil following removal of aquifer infrastructure including subgrade utility corridors and associated buildings.	DOE	EPA, Ohio EPA	2040	N	Y

## 9.0 Protectiveness Statement(s)

The remedy at OU1 is protective of human health and the environment. All known waste materials have been removed and disposed of permanently. The underlying soils have been certified to meet established FRLs pursuant to the OU5 ROD. Institutional controls as specified in Section 6.1.6 and access controls are in place and effective in ensuring that the footprint of OU1 is used in accordance with the land use objectives and FRLs supporting those land use objectives.

The remedy at OU2 is protective of human health and the environment. All waste materials have been removed and disposed of permanently. The underlying soils have been certified to meet established FRLs pursuant to the OU5 ROD. Institutional controls and access controls are in place and effective in ensuring that the footprint of OU2 is used in accordance with the land use objectives and FRLs supporting those land use objectives. The cap and liner systems of the OSDF are functioning as designed and are successfully isolating the waste materials. The volume of leachate generated from the OSDF is continuing to decline, and the leachate is being effectively collected and treated to minimize impacts to human health and the environment.

The remedy at OU3 is protective of human health and the environment. All waste materials and building debris have been removed and disposed of permanently. The underlying soils have been certified to meet established FRLs pursuant to the OU5 ROD. Institutional controls and access controls are in place and effective in ensuring that the footprint of OU3 is used in accordance with the land use objectives and FRLs supporting those land use objectives.

The remedy at OU4 is protective of human health and the environment. All waste materials have been removed and disposed of permanently. The underlying soils have been certified to meet established FRLs pursuant to the OU5 ROD. Institutional controls and access controls are in place and effective in ensuring that the footprint of OU4 is used in accordance with the land use objectives and FRLs supporting those land use objectives.

The remedy at OU5 is currently protective of human health and the environment because exposure pathways that could result in unacceptable risks are being managed. Soils sitewide have been certified to meet FRLs established in the OU5 ROD, with the exception of the infrastructure footprint that supports aquifer restoration. Current groundwater monitoring data indicate that the groundwater remedy is functioning as required to achieve groundwater FRLs. The cap and liner systems of the OSDF are functioning as designed and are successfully isolating the waste materials. The volume of leachate generated from the OSDF is continuing to decline, and the leachate is being effectively collected and treated to minimize impacts to human health and the environment. Institutional controls as specified in Section 6.1.6 and access controls are in place and effective in ensuring that the footprint of OU5 is used in accordance with the land use objectives and FRLs supporting those land use objectives. However, in order for the remedy to be protective in the long-term, the following actions need to be taken to ensure protectiveness: 1) perform an investigation of the site to evaluate the potential for releases of PFCs and 2) certify soils associated with the aquifer restoration infrastructure footprint.

The sitewide remedy at the Fernald Preserve site is currently protective of human health and the environment because exposure pathways that could result in unacceptable risks are being managed. All waste materials generated during remediation have been removed and disposed of

permanently. The underlying soils have been certified to meet established FRLs except soils beneath two facilities (Converted Advanced Wastewater Treatment facility and South Field Valve House) and subgrade utility corridors needed to support the ongoing groundwater remedy. Institutional controls and access controls are in place and effective in ensuring that the footprint of OUs 1, 2, 3, 4, and 5 are used in accordance with the established land use objectives and the FRLs that support those land use objectives. In addition, for OU5, current groundwater monitoring data indicate the groundwater remedy is functioning as required to achieve groundwater FRLs. The cap and liner systems of the OSDF are functioning as designed and are successfully containing waste materials. The volume of leachate generated from the OSDF is continuing to decline, and the leachate is being effectively collected and treated to minimize impacts to human health and the environment. Institutional controls as specified in Section 6.1.6 and access controls are in place and effective in ensuring that the footprint of OU5 is used in accordance with the land use objectives and FRLs supporting those land use objectives. However, in order for the remedy to be protective in the long-term, the following actions need to be taken to ensure protectiveness: 1) perform an investigation of the site to evaluate the potential for releases of PFCs and 2) certify soils associated with the aquifer restoration infrastructure footprint.

## 10.0 Next Review

The next five-year review for the Fernald site is required in 2021, which is 5 years from the due date of this review.

The next five-year review report for the Fernald site is required to be completed by 5 years from EPA's concurrence signature date on this review.