



U.S. ENVIRONMENTAL PROTECTION AGENCY

OFFICE OF INSPECTOR GENERAL

***Hotline Report:
Cleaning up and revitalizing land***

EPA Finalized a Study of the Historical Applications of Coal Ash as Structural Fill

Report No. 19-N-0084

March 8, 2019



Report Contributors:

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Abbreviations

CCR	Coal Combustion Residual
EPA	U.S. Environmental Protection Agency
OIG	Office of Inspector General
OLEM	Office of Land and Emergency Management
ORCR	Office of Resource Conservation and Recovery
RCRA	Resource Conservation and Recovery Act

Cover Photo: Highway embankment with fly ash structural fill.
(U.S. Department of Transportation photo)

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At a Glance

Why We Did This Project

The U.S. Environmental Protection Agency (EPA)'s Office of Inspector General (OIG) received a hotline complaint about the status of the agency's corrective actions in response to OIG Report No. [11-P-0173](#), *EPA Promoted the Use of Coal Ash Products With Incomplete Risk Information*, dated March 23, 2011. We conducted this work to determine whether the corrective actions were completed.

The OIG's earlier report contained two recommendations for the EPA Office of Land and Emergency Management (OLEM):

1. "Define and implement risk evaluation practices to determine the safety of the coal combustion residual (CCR) beneficial uses EPA promotes. (Note: CCR is also known as *coal ash*.)"
2. "Determine if further EPA action is warranted to address historical CCR structural fill applications, based on comments on the proposed rule and other information available to EPA."

This report addresses the following:

- *Cleaning up and revitalizing land.*

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Listing of [OIG reports](#).

EPA Finalized a Study of the Historical Applications of Coal Ash as Structural Fill

What We Found

The OLEM Office of Resource Conservation and Recovery (ORCR) completed the corrective actions associated with Recommendations 1 and 2 in OIG Report No. [11-P-0173](#).

During this assignment, the ORCR informed us that it had developed an unpublished document titled *Information Assessment of Historical Structural Fill Applications*, dated May 27, 2016. This document details considerable efforts by the ORCR to address Recommendation 2 and states, "Thus, based on the available information reviewed and the availability of response authorities, EPA has determined that no further action to address historical CCR structural fill applications as a general issue is warranted at this time." The ORCR also concluded that existing statutory authorities are available to address environmental concerns that may arise at a historical CCR structural fill site.

The ORCR determined that no further EPA action is warranted to address historical structural fill applications.

The agency did not make the determination public by publishing it on the EPA's website. This type of transparency could provide information important to the public.

Recommendation and Agency Corrective Action

We recommend that the Assistant Administrator for Land and Emergency Management publish the document titled *Information Assessment of Historical Structural Fill Applications*, dated May 27, 2016. The EPA agreed and completed the corrective action by publishing the document in an internet database called *RCRA Online*. (RCRA stands for *Resource Conservation and Recovery Act*.)



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
INSPECTOR GENERAL

March 8, 2019

MEMORANDUM

SUBJECT: EPA Finalized a Study of the Historical Applications of Coal Ash as Structural Fill Report No. 19-N-0084

FROM: Charles J. Sheehan, Acting Inspector General

A handwritten signature in blue ink that reads "Charles J. Sheehan".

TO: Barry Breen, Acting Assistant Administrator
Office of Land and Emergency Management

This is our report on the subject assignment conducted by the Office of Inspector General (OIG) of the U.S. Environmental Protection Agency (EPA). The project number for this assignment was OA&E-FY19-0088. This report contains findings that describe the problems the OIG has identified and corrective actions the OIG recommends. This report represents the opinion of the OIG and does not necessarily represent the final EPA position. Final determinations on matters in this report will be made by EPA managers in accordance with established resolution procedures.

The Office of Resource Conservation and Recovery, within the Office of Land and Emergency Management, is responsible for the environmental regulation of coal ash.

In accordance with EPA Manual 2750, your office completed acceptable corrective action in response to the OIG recommendation. The recommendation is resolved, and no final response to this report is required. However, if you submit a response, it will be posted on the OIG's website, along with our memorandum commenting on your response. Your response should be provided as an Adobe PDF file that complies with the accessibility requirements of Section 508 of the Rehabilitation Act of 1973, as amended. The final response should not contain data that you do not want to be released to the public; if your response contains such data, you should identify the data for redaction or removal along with corresponding justification.

We will post this report to our website at www.epa.gov/oig.

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Purpose

The purpose of this report is to assess the status of corrective actions addressing recommendations issued in a prior U.S. Environmental Protection Agency (EPA) Office of Inspector General (OIG) report. This assignment was initiated in response to a complaint received via the EPA OIG Hotline.

Background

Coal Combustion Residuals

Coal combustion residuals (CCRs), commonly known as coal ash, are the residuals produced from burning coal for the generation of electricity. CCRs represent one of the largest waste streams in the United States. According to the American Coal Ash Association's *2017 Coal Combustion Product (CCP) Production & Use Survey Report*, 111 million tons of coal ash were generated in 2017. Some power plants may dispose of CCRs in surface impoundments or landfills. Others may discharge CCRs into nearby waterways under their water discharge permits.

According to the EPA, CCRs contain contaminants such as mercury, cadmium and arsenic. Without proper protections, contaminants in coal ash can pollute waterways, ground water, drinking water and air. The EPA has established national rules for coal ash disposal to address the risks from improper disposal and discharge.

There are two types of beneficial¹ CCR uses: encapsulated and unencapsulated. Encapsulated coal ash is bound in products such as concrete or bricks. Unencapsulated uses of coal ash are those where coal ash is used in a loose particulate, sludge or other unbound form.



Left: coal ash staging. Right: surface impoundment. (EPA photos)

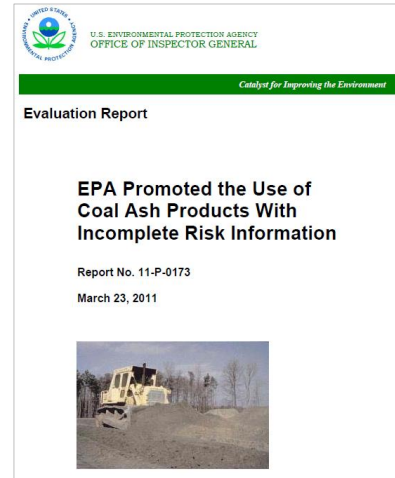
The 2011 OIG Coal Ash Report

The OIG published Report No. [11-P-0173](#), *EPA Promoted the Use of Coal Ash Products With Incomplete Risk Information*, on March 23, 2011. The report

¹ Additional information on CCR beneficial uses is available on the EPA's "Coal Ash Reuse" [webpage](#).

contained two recommendations for the EPA Office of Land and Emergency Management (OLEM):²

1. “Define and implement risk evaluation practices to determine the safety of the CCR beneficial uses EPA promotes.
2. “Determine if further EPA action is warranted to address historical CCR structural fill applications, based on comments on the proposed rule³ and other information available to EPA.”



Cover of Report No. 11-P-0173.
(OIG image)

Responsible Office

The Office of Resource Conservation and Recovery (ORCR) within OLEM is responsible for the issues noted in this report.

Scope and Methodology

This report does not constitute an audit conducted in accordance with generally accepted government auditing standards. This effort was initiated in response to a hotline complaint regarding the status of the EPA’s actions in response to recommendations in the 2011 OIG coal ash report. We met with ORCR managers and staff in May 2018 and December 2018 to determine the status of the corrective actions, and we reviewed the documents that the EPA provided in response to the recommendations.

Results

ORCR Completed Recommendation 1 Corrective Actions

The ORCR addressed Recommendation 1 by developing an evaluation hierarchy for encapsulated beneficial uses, which it issued on September 30, 2013. It also developed a conceptual model for evaluating risks from unencapsulated beneficial uses, which it made available to the public on April 15, 2016. In addition, according to the EPA’s “Frequent Questions about the Beneficial Use of Coal Ash” [webpage](#):

During the development of the framework to address the risks associated with the beneficial use of unencapsulated materials

² At the date of the 2011 report, OLEM was known as the Office of Solid Waste and Emergency Response.

³ As noted in the 2011 report, “In June 2010, EPA proposed a rule to regulate coal ash under RCRA (Resource Conservation and Recovery Act) for the first time, to address the risks from the disposal of the wastes generated by electric utilities and independent power producers.”

including CCR, the Agency determined that the principles outlined in the 2013 Methodology for Evaluating Encapsulated Beneficial Uses of Coal Combustion Residuals are also applicable and relevant to unencapsulated uses. Therefore, EPA combined the discussion of encapsulated and unencapsulated uses into a single document and renamed it the [Methodology for Evaluating the Beneficial Use of Industrial Non-Hazardous Secondary Materials and the Beneficial Use Compendium](#) to reflect the broader scope.

The OIG considers Recommendation 1 complete.

ORCR Completed Recommendation 2 Corrective Actions but Did Not Publish Its Decision

Recommendation 2 was based on the OIG’s analysis of data from the American Coal Ash Association that documented the use of large volumes of CCRs as structural fill, an unencapsulated use. As stated in OIG Report No. [11-P-0173](#), “The large volumes of unencapsulated coal ash reportedly used for structural fill beneficial use applications may represent a large universe of inappropriate disposal applications with unknown potential for adverse environmental and human health impacts.” Problems with large-scale structural fill applications, such as ground water contamination, have been documented in damage cases by the EPA.⁴

During our current work, the ORCR informed us that it had developed an unpublished document titled *Information Assessment of Historical Structural Fill Applications*, dated May 27, 2016. According to OLEM, the completed document was provided to OLEM’s Audit Follow-Up Coordinator’s records/files for OIG Report No. [11-P-0173](#). The document details considerable efforts by the ORCR to address the intent of Recommendation 2, including reviews of the following: (1) comments on the CCR Disposal Rule proposed in calendar year 2010, (2) the known damage cases from the CCR rulemaking, (3) communications with the EPA’s regional offices and states, (4) relevant literature and (5) Superfund National Priority List sites.

The *Information Assessment of Historical Structural Fill Applications* document includes the following statement:

Thus, based on the available information reviewed and the availability of response authorities, EPA has determined that no further action to address historical CCR structural fill applications as a general issue is warranted at this time.

In its response (Appendix A) to the OIG’s draft report, the ORCR also concluded that existing statutory authorities are available to address environmental concerns

⁴ According to the EPA’s “CCR Damage Case Database” [webpage](#), CCR proven damage cases are documented by a scientific investigation, an administrative ruling or a court decision.

that may arise at a historical CCR structural fill site. Although the OIG did not specifically recommend doing so in the 2011 report, publishing the finalized document would enhance transparency and could provide information important to the public.

In addition, in its response (Appendix A) to the OIG's draft report, OLEM made the following statement:

OLEM is currently engaged in regulatory development activities which could result in proposed and ultimately final changes to portions of the CCR regulations including the CCR beneficial use definition. While the May 2016 *Information Assessment of Historical Structural Fill Applications* is an important analysis, it does not reflect a determination on issues currently before the Agency in this rulemaking effort.

Conclusions

The ORCR completed corrective actions for Recommendations 1 and 2. For Recommendation 2, the ORCR determined that no further action was warranted by the EPA. Although the ORCR produced a document supporting this determination, it never published the document.

Recommendation

We recommend the Assistant Administrator for Land and Emergency Management:

1. Publish the *Information Assessment of Historical Structural Fill Applications* document, dated May 27, 2016.

Agency Response and OIG Evaluation

The acting Assistant Administrator for OLEM provided a response to our draft report. We included the response in Appendix A. We reviewed the response and revised the report as appropriate. In its response, OLEM provided support that the corrective action for Recommendation 1 is completed, as the *Information Assessment of Historical Structural Fill Applications* document, dated May 27, 2016, has been published in an internet database called *RCRA Online*.

Status of Recommendations and Potential Monetary Benefits

RECOMMENDATIONS

Rec. No.	Page No.	Subject	Status ¹	Action Official	Planned Completion Date	Potential Monetary Benefits (in \$000s)
1	4	Publish the <i>Information Assessment of Historical Structural Fill Applications</i> document, dated May 27, 2016.	C	Assistant Administrator for Land and Emergency Management	2/20/19	

¹ C = Corrective action completed.
 R = Recommendation resolved with corrective action pending.
 U = Recommendation unresolved with resolution efforts in progress.

OLEM Response to Draft Report and OIG Comment



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

FEB 22 2019

OFFICE OF
SOLID WASTE AND
EMERGENCY RESPONSE

NOW THE
OFFICE OF LAND AND
EMERGENCY MANAGEMENT

MEMORANDUM

SUBJECT: Response to the Draft OIG Report: *EPA Finalized a Study of the Historical Applications of Coal Ash as Structural Fill*: Assignment OA&E-FY19-0088

FROM: Barry N. Breen
Acting Assistant Administrator

TO: Charles Sheehan
Acting Inspector General
Office of the Inspector General

Thank you for the opportunity to review and respond to the Office of Inspector General's (OIG) draft report, *EPA Finalized a Study of the Historical Applications of Coal Ash as Structural Fill*, dated February 14, 2019. The comments below present the response of the Office of Land and Emergency Management (OLEM) on the draft report and its included recommendation.

Agency's Overall Response

OLEM generally agrees that the OIG draft report appropriately reflects that the Office of Resource Conservation and Recovery (ORCR) completed corrective actions for Recommendations 1 and 2 of the OIG Report No. 11-P-0173, *EPA Promoted the Use of Coal Ash Products with Incomplete Risk Information*, dated March 23, 2011. OLEM suggests including additional language to the **At A Glance** page to provide clarity and avoid misinterpretation, as this determination does not preclude EPA from taking further action to address any environmental concerns that might arise. OLEM asks to include the following language:

ORCR determined that no further EPA action is warranted to address historical structural fill applications. ORCR also concluded that existing statutory authorities are available to address environmental concerns that may arise at a historical CCR structural fill site.

OIG Response 1: Additional language was added as suggested.

OLEM asks that on page 2 under the section titled ***EPA Completed Recommendation 2 Corrective Actions but Has Not Published Its Decision***, the language be modified to reflect that the document, *Information Assessment of Historical Structural Fill Applications*, dated May 27, 2016, not be characterized as an internal document. ORCR completed the document and submitted it to the OLEM Audit Follow-up Coordinator for placement in the records/files. OLEM asks for the following revision:

During our current work, the ORCR informed us that it had developed a document titled Information Assessment of Historical Structural Fill Applications, dated May 27, 2016. The completed document was provided to the OLEM Office Audit Follow-up Coordinator’s records/files for OIG Report No. 11-P-0173, EPA Promoted the Use of Coal Ash Products with Incomplete Risk Information, dated March 23, 2011.

OIG Response 2: “Internal” was changed to “unpublished,” and additional text was added as suggested.

In addition, OLEM is currently engaged in regulatory development activities which could result in proposed and ultimately final changes to portions of the CCR regulations including the CCR beneficial use definition. While the May 2016 *Information Assessment of Historical Structural Fill Applications* is an important analysis, it does not reflect a determination on issues currently before the Agency in this rulemaking effort.

OIG Response 3: This language was added at the end of the “Results” section for emphasis.

The Agency’s Response to the Report Recommendation

No.	Recommendation	Corrective Action	Estimated Completion Date
1	Publish <i>the Information Assessment of Historical Structural Fill Applications</i> document, dated May 27, 2016.	OLEM will post the <i>Information Assessment of Historical Structural Fill Applications</i> document on an appropriate OLEM website.	On February 20, 2019, the document was posted on the RCRA Online database; document #51457

In conclusion, OLEM appreciates the opportunity to review the OIG’s subject draft report. If you have additional questions, please contact Barnes Johnson, Director, Office of Resource Conservation and Recovery, at 703-308-8635, or Kecia Thornton, OLEM Audit Follow-Up Coordinator, at 202-566-1913.

Distribution

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