Annual Inspection Report for the Ames Inactive CCR Impoundment

Ames Municipal CCR Impoundment
Ames (Story County), Iowa

City of Ames, Iowa

July 30, 2025

→ The Power of Commitment

Certification

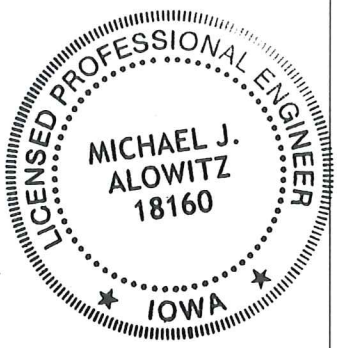
Annual Inspection Report

Ames Inactive CCR Impoundment

Ames, Iowa

City of Ames

I certify this Annual Inspection Report for the Ames Inactive CCR Impoundment meets the requirements of 40 CFR §257.83(b)(1),



I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

Michael J. Alowitz, P.E. — Date: 7/30/2025

License Number: 18160

My license renewal date is: December 31, 2026

Pages or sheets covered by this seal: Entire Document

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1. Introduction

1.1 Purpose of this report

The purpose of the annual site inspection is to, through observation, ensure that the design, construction, operation, and maintenance of the coal combustion residuals (CCR) unit is consistent with recognized and generally accepted good engineering practices. Per 40 Code of Federal Regulations (CFR) §257.83(b)(1), the site inspection must, at a minimum, include:

- A review of available information regarding the status and condition of the CCR unit, operating records files, weekly inspections, structural stability assessments, and results of previous annual inspections
- A visual site inspection of the CCR unit and appurtenant structures to identify signs of distress or malfunction of the CCR unit and appurtenant structures
- A visual site inspection of any hydraulic structures underlying the base or passing through the dike of the CCR unit for structural integrity and continued safe and reliable operation
- A site inspection report that includes the following:
    - Changes in geometry since the last inspection
    - Location and type of existing instrumentation and maximum recorded readings since the last inspection
    - Approximate minimum, maximum, and present depth and elevation of impounded water and CCR since the last inspection
    - Storage capacity of the impounding structure at time of inspection
    - Approximate volume of impounded water and CCR at the time of inspection
    - Appearance of actual or potential structural weakness of the CCR unit
    - Any other changes which may have affected the stability or operation of the CCR unit since the last inspection

An initial site visit was completed on October 21, 2024. A second site visit was conducted on May 29, 2025, to satisfy 40 CFR §257.83(b) requirements. This inspection report is the 2024 annual inspection based on the October 21, 2024, inspection and records reviews; however, due to rapid changes in site conditions, this report primarily addresses conditions observed in May 2025. The next site visit for inspection is anticipated to be completed in the last quarter (October through December) of 2025.

1.2 Facility Description

The City of Ames (City) owns and operates a full-service electric utility, the Ames Municipal Electric System. The Ames Municipal Electric System consists of generation, transmission, and distribution assets necessary to serve the City. The City owns and operates two generating facilities, the Steam Electric Plant (SEP) and the Combustion Turbine Station. The SEP has two generating units (7 and 8), with nameplate ratings of 33 and 65 megawatts which went into commercial operation in 1967 and 1982, respectively. Both units were outfitted with pulverized coal boilers providing steam to non-reheat turbine-generators. For fuel, the boilers fired ultra-low sulfur sub-bituminous coal from the Powder River Basin in Wyoming, along with co-firing refuse derived fuel (RDF). The CCR generated was sluiced to a CCR impoundment. In 2016, both units were converted to fire natural gas, while still co-firing RDF, which has been done since 1975. By discontinuing the discharge of CCR to the ash site as of October 19, 2015, the CCR impoundment qualifies as an “inactive” site under 40 CFR §257.53 and is referred to as the inactive impoundment herein.

Placement of CCR into the inactive impoundment ceased prior to October 19, 2015. The Impoundment continued to be operated by the Ames Municipal Electric System SEP to dispose of the non-CCR ash from the co-firing of RDF in the power plant’s boilers until April 11, 2021, per 40 CFR §257.101(a)(1).

The Ames Municipal Electric System SEP completed the design and permitting of a partial closure by removal and partial in-place closure of the Impoundment. At the time of the two visits (October 2024 and May 2025) described in this report, closure construction was underway but not complete. Figure 1 shows the areas of inactive impoundment late in closure construction and surrounding features including monitoring well locations.

2. Review of Available Information

Mr. Michael Alowitz, P.E. of GHD completed an annual site inspection and review of the Ames Municipal Electric System SEP Impoundment on October 21, 2024, and May 28, 2025, in accordance with 40 CFR §257.83(b)(1). The weather during the October visit was sunny with temperatures in the upper 70-degrees Fahrenheit and the May visit was sunny with temperatures in mid-60-degrees Fahrenheit. There had been rain overnight prior to the site May 2025 visit.

The previous inspection report (SCS, 2024) was reviewed. The Issued for Construction drawings detailing closure construction plans were reviewed. Closure construction daily reports and photologs from June through October 24, 2024, were reviewed. These reports documented milestones in the closure construction and an overview of the site conditions observed in October 2024. Significant activities included: dewatering, construction of the separation berm between closure by removal and consolidation areas, excavation of CCR, drying, and consolidation, exploratory trenching and related work to support consolidation activities. For closure by removal areas, the construction quality assurance contractor performed routine inspections to confirm CCR removal. In addition to air drying, cement was used for stabilization of the CCR.

2.1 Operating Record Review

In accordance with §257.83(b)(1)(i), GHD reviewed the available information in the operating record for the Impoundment in support of the visual observation discussed below. GHD reviewed operating record materials provided by the Ames Municipal Electric System SEP and the information posted on the Ames Municipal Electric System's CCR Rule Compliance Data and Information website for this facility. Compliance documents to meet the April 17, 2018, deadline under §257.100(e)(3)(i), (iv), and (v), §257.100(e)(4)(ii), and §257.100(e)(6)(i) and (ii) were completed as required. The required five-year update of those documents was completed in 2023. Additional specific documents reviewed include, but are not limited to, the previous annual site inspection report by SCS Engineers (SCS) dated April 5, 2023. Review of the above documents did not identify any unresolved issues that indicated operation, safety, or structural concerns on the Ames Municipal Electric System SEP Impoundment

2.2 Visual Inspection

GHD personnel completed a visual inspection of the inactive impoundment including the closed by removal portion. The inspection consisted of walking accessible perimeter roads (a small portion was obstructed by construction activities) and observing the impoundment, consolidation area, and monitoring wells. The field visit focused on the following:

– The condition of perimeter embankments and berms; specifically looking for signs of settlement, erosion, slope failure, or inadequate vegetation
– Stormwater management features
– Monitoring well general conditions
– Future inspections will include the cover over the consolidated CCR; however, since construction was underway, this area was excluded from inspection other than as observed from the perimeter roads
– An initial site visit was completed on October 21, 2024. At this time, closure had been initiated. Most of this inspection report addresses conditions during the May 29, 2025, site visit. For both site visits, closure

construction activities were the primary activity, no new fill activities were ongoing, and site conditions were in a state of change.

3. Annual Inspection Results

There were significant changes to the management of the inactive impoundment with CCR excavation starting in June 2024. As of the May 29, 2025, site visit, closure construction was nearing completion. In October 2024, removal of CCR from the east portion of the inactive impoundment was underway. The CCR was consolidated in the western portion of the inactive impoundment. The inspection observations from this time indicated little change to the site conditions other than dewatering was largely complete.

As of May 2025 site visit, the closure by removal was complete, a flexible membrane liner had been installed (except for a vehicle pathway), and an overlying geocomposite drainage layer was being installed. Portions of the stormwater control system were under construction. There was heavy equipment including trucks and loaders present on the site. Cover installation was actively occurring during the inspection. The aerial image on Figure 1 shows the site conditions prior to placement of the geomembrane; the eastern portion of the inactive impoundment is closed by removal and CCR is consolidated in the western portion.

Although the 2023 inspection report was reviewed, the scale of changes with closure construction means photo-by-photo comparison is not applicable. The first inspection after closure construction is complete will serve as a new baseline for future comparisons. Select photographs from the May 2025 site visit are provided in Appendix A.

3.1 Changes in Geometry

Sub-subparagraph 40 CFR 257.83(b)(2)(i) requires any changes in the geometry of the impoundment structure (e.g., dikes and berms) be noted. Consolidation and closure activities since 2024 led to significant intentional changes in the CCR storage geometry. The east portion of the former inactive impoundment is now closed by removal and no longer contains CCR. It is currently a large basin. The west portion of the inactive impoundment where CCR and RDF was consolidated is now humped above grade with positive external drainage. Run-on to CCR storage areas is no longer a consideration due to the changes in geometry.

Changes were observed at the northeast area of the consolidated CCR area where stormwater controls were being installed. This was not observed to be a structural weakness or failure point, but part of closure activities. This berm separating the consolidated CCR and the closed by removal section was part of closure construction activities. Site perimeter roads were graded and fortified during closure construction.

3.2 Instrumentation and Readings

Sub-subparagraph 40 CFR 257.83(b)(2)(ii) requires location and type of existing instrumentation and maximum recorded readings of each instrument since the previous inspection. There is no instrumentation related to berm stability or settlement. There is no instrumentation in or on the consolidated CCR in the inactive impoundment.

The surrounding monitoring well network is depicted on Figure 1 but is not considered instrumentation related to the engineering inspection of the inactive impoundment. Wells and piezometers were visibly observed during the inspection and field notes from groundwater monitoring were reviewed. Wells appear to be functioning properly. In July 2024, the bollards around one well were damaged by construction equipment; however, the monitoring well itself was undamaged. Previous inspection reports documented water level monitoring data; however, these data are not included herein as they are not applicable to the condition of the inactive impoundment.

3.3 Depth and Elevation of Impounded Water and CCR

Sub-subparagraph 40 CFR 257.83(b)(2)(iii) requires documentation of the approximate minimum, maximum, and present depth and elevation of the impounded water and CCR since the previous annual inspection. There is no longer known impounded water or impounded CCR (since conditions are dry). The western portion of the inactive impoundment was dewatered to facilitate closure construction and all CCR is now stored in this area. The eastern portion of the former inactive impoundment was closed by removal; therefore, any observed water in that area is not considered impounded relative to CCR storage. Sluice water was last discharged to the Impoundment on April 11, 2021.

3.4 Storage Capacity

Sub-subparagraph 40 CFR 257.83(b)(2)(iv) requires documentation of the storage capacity of the impounding structure at the time of the inspection. Storage capacity is no longer relevant since the inactive impoundment has been dewatered and CCR consolidated within a portion of the inactive impoundment. Originally the inactive impoundment's storage capacity was approximately 161,995 cubic yards (SCS Engineers, 2023).

3.5 Volume of Impounded CCR and Water

Sub-subparagraph 40 CFR 257.83(b)(2)(v) requires documentation of the approximate volume of the impounded water and CCR at the time of the inspection; there is no longer impounded CCR or water at the inactive impoundment. The CCR and RDF were consolidated in the western portion and impounded water has been removed. The 2023 inspection reported an estimated volume of approximately 180,000 cubic yards of CCR and RDF (SCS, 2023). Because there were no additions of CCR or RDF during the closure construction process, the estimated volume of CCR is unchanged.

3.6 Structural Weakness or Disruptive Conditions

Sub-subparagraph 40 CFR 257.83(b)(2)(vi) requires the inspection report to document any appearances of an actual or potential structural weakness of the CCR unit, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit and appurtenant structures. No weaknesses or disruptive conditions aside from closure construction were noted during the inspection.

3.7 Other Changes Affecting Stability or Operation

Sub-subparagraph 40 CFR 257.83(b)(2)(vii) requires any other change(s) which may have affected the stability or operation of the impounding structure since the previous annual inspection be documented in the annual inspection report. As described, there were significant changes. The inactive impoundment is no longer an impoundment as it has been dewatered, and a portion closed by removal.

4. Reference

SCS Engineers, 2023. 2023 Annual Inspection Report Inactive CCR Surface Impoundment. April 2024.

Source: Image ©2025 Google (Imagery Date 5/17/2025)

LEGEND

- GROUNDWATER MONITORING WELL
- PIEZOMETER LOCATION

0 75 150 ft

1" = 150 ft

Coordinate System:
IA83-NF

N

GHD

CITY OF AMES
INACTIVE CCR IMPOUNDMENT
AMES, IOWA

SITE MAP

Project No. **12650319**
Date **July 2025**

FIGURE 1

Filename: N:\US\Des Moines\Projects\563\12650319\Digital_Design\ACAD\Figures\RPT003\12650319-GHD-00-00-RPT-EN-D101_003.dwg
Plot Date: 10 July 2025 2:42 PM

Appendices

Appendix A

Select Photographs

Site Photographs

Photo 1 *Southeast corner of area to capped and closed with CCR in place. Area to right is the eastern access road. Looking south. October 21, 2025.*

Photo 2 *CCR grading and consolidation activities on the western portion of the inactive surface impoundment. Looking northeast. October 21, 2024.*

Photo 3 *East portion of inactive impoundment. Closed by removal. Looking northeast. May 29, 2025.*

Photo 4 *Former flow control structure at the southwest corner of the closed by removal portion of the inactive impoundment. Looking east. May 29, 2025.*

Photo 5 *Portion of the southern perimeter of the consolidated and capped area of the inactive impoundment showing geomembrane liner and anchor trench. Looking east. May 29, 2025.*

Photo 6 *The southwest corner of the consolidated and capped area of the inactive impoundment showing geombembrane and anchor trench. Looking north. May 29, 2025.*

Photo 7 *Further out view of Photograph 4 showing the road conditions at the time of inspection. Looking North. May 29, 2025.*

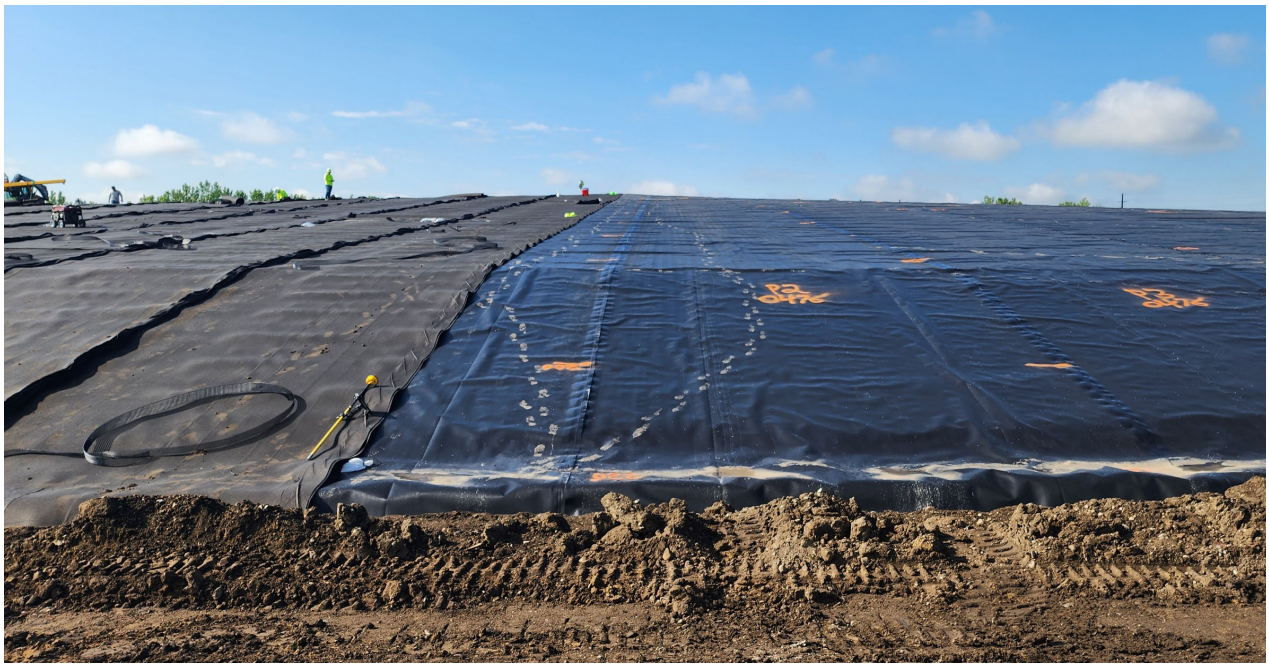

Photo 8 *Installation of geocomposite drainage layer proceeding over geomembrane in the consolidated and capped portion of the inactive impoundment. May 29, 2025.*

Photo 9 *Monitoring well MW-102. Typical monitoring well configuration with bumper posts. May 29, 2025.*

Photo 10 *Stormwater management infrastructure in dividing berm between closed by removal area (left or east) and consolidated and capped area (right or west) of inactive impoundment. Looking south. May 29, 2025.*

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