



Coal Combustion Residual Legacy Rule Third 6-Month Applicability Extension Report

Ben French Power Station, Rapid City, SD

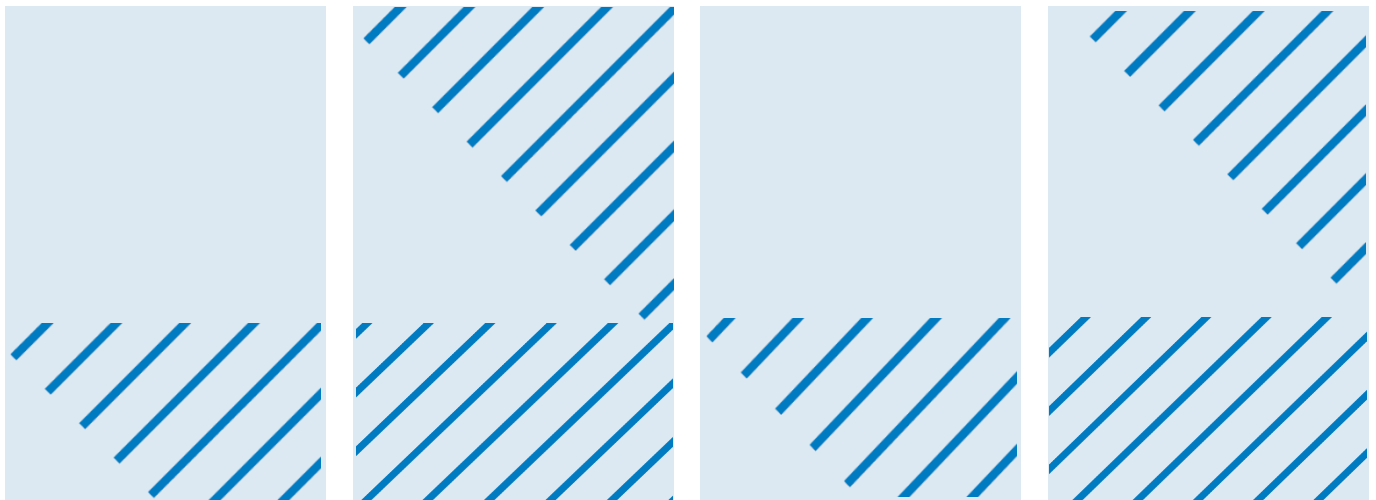
Prepared for:
Black Hills Power
7001 Mount Rushmore Road
Rapid City, SD

Prepared by
Barr Engineering Co.

November 2025

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Certification

I hereby certify that I have examined facility records, being familiar with the provisions of 40 CFR 257 Subpart D, attest that this Field Investigation Work Plan and Certification have been prepared by me or under my direct supervision in accordance with good engineering practice, including consideration of relevant industry standards and the requirements of 40 CFR § 257.100(f)(1)(iii). I further certify that I am a duly Licensed Professional Engineer under the laws of the State of South Dakota and that I have professional experience with surface impoundment design, operation, monitoring and closure.

The services performed by Barr for this Project have been conducted in a manner consistent with the level of skill and care ordinarily exercised by other members of the profession currently practicing in this area. No other warranty, expressed or implied, is made.



Paul T. Swenson
South Dakota PE-8949

November 7, 2025

Date





CCR Legacy Rule Third 6-Month Applicability Extension Report

November 2025



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1 Introduction

On May 8, 2024, EPA finalized the Coal Combustion Residual (CCR) Legacy Rule, which includes new regulations for inactive surface impoundments at inactive electric utilities, referred to as "legacy CCR surface impoundments." In addition, the new regulation included requirements for CCR surface impoundments and landfills that closed prior to the effective date of the 2015 CCR Rule and other areas where CCRs were disposed of or managed on land outside of regulated units at active facilities. These newly regulated areas are referred to as "CCR management units" or CCRMUs. The Legacy Rule offers owners the ability to secure additional time (up to 18 months, in 6-month increments) to complete an applicability report for the sole reason of determining through field investigation whether the unit contains both CCRs and liquids. The second CCR Legacy Rule 6-month extension was completed on May 8, 2025. Black Hills Power (BHP) is in the process of conducting the field investigation described later in this report. On behalf of BHP, Barr Engineering Co. (Barr) has prepared this third and final CCR Legacy Rule 6-month applicability extension report for the former slag pond at Ben French Power Station (Ben French).

In the time since the second extension was published, EPA issued a memorandum on July 10, 2025 entitled "Memorandum: Considerations for the Identification and Elimination of Free Liquids in Coal Combustion Residuals (CCR) Surface Impoundments and Landfills (40 CFR Part 257, Subpart D) Docket ID No. EPA-HQ-OLEM-2020-0107-106." The memorandum, from Steven Cook, Principal Deputy Assistant Administrator, essentially rescinded the April 22, 2024 EPA memorandum cited and included in previous Ben French applicability extension reports. The July 10, 2025 memorandum explains that the previously issued EPA guidance on how to identify and interpret free liquids was not to be relied upon or used to implement regulatory requirements.

EPA has indicated that the current Legacy Rule will be modified in the future, and extensions have been proposed. Further, EPA is anticipated to provide additional clarification on the definition of free liquids which may affect methods and interpretations that are the basis of this investigation. Given current regulatory uncertainty and in the absence of further EPA guidance, a final six-month extension is warranted. The site will continue to be evaluated as per the workplan and additional monitoring to determine potential seasonal effects on groundwater elevations in the area will be conducted.

1.1 Background information

BHP owns and operates Ben French, a previously coal-fired electrical generation station located in Rapid City, SD. Ben French ceased coal-fired operations in 2012. Coal-fired assets were subsequently decommissioned in 2014, but diesel generators and combustion turbines remain and are currently in operation at the site. Accordingly, Ben French is considered an "active facility" that potentially falls under Legacy Rule regulation.

During coal-fired facility operation, CCRs from the plant were placed in a slag pond and in an ash monofill. Decommissioning activities for the coal-fired assets included line items for decommissioning the slag pond and ash monofill. While it is thought that most, if not all, CCRs were removed and transported offsite for disposal, BHP is unable to verify and validate that all CCRs were removed. Owners of legacy surface impoundments must make an applicability determination and prepare an applicability report,



indicating whether or not the unit is subject to the Legacy Rule. Existing and available information, however, does not provide a sufficient basis to determine applicability, i.e., it is not evident that the unit contained CCRs and free liquids on or after October 19, 2015.

Ben French is an active facility and may have other CCRMUs onsite. The Legacy Rule requires the preparation of a Facility Evaluation Report (FER), with the purpose of determining whether any CCRMUs exist on-site, and, if so, to delineate the lateral and vertical extent of the unit(s). This report is not intended to address FER requirements, which are due later, with FER Part 1 due February 9, 2026, and FER Part 2 due February 9, 2027.

1.2 Purpose

The Legacy Rule offers owners the ability to secure additional time to complete an applicability report for the sole reason of determining through field investigation whether the unit contains both CCRs and liquids (and therefore is subject to all the CCR Legacy Rule requirements for inactive impoundments). As per the EPA memorandum dated July 10, 2025, BHP will not use the EPA memorandum entitled "Considerations for the Identification and Elimination of Free Liquids in Coal Combustion Residuals (CCR) Surface Impoundments and Landfills" dated April 22, 2024, to guide field investigation efforts. The EPA memorandum from July 10, 2025 is attached as Appendix A.

If, during implementation of the written field investigation workplan (described in detail in later sections), BHP determines that the unit contains CCRs and free liquids, BHP will cease operating under the extension provisions and prepare an applicability report within 14 days of determining that the unit contains free liquids. BHP would also comply with the remaining Legacy Rule requirement deadlines under new timeframes, to be determined by adding the total length of the extension(s) to each of the deadlines specified in the Legacy Rule.

Alternatively, if BHP determines that the former Ben French surface impoundment does not contain both CCR and liquids during implementation of the written field investigation work plan, BHP would prepare a notification stating that the field investigation has concluded and has determined that the unit does not contain both CCR and liquids and therefore does not meet the definition of a Legacy CCR surface impoundment. BHP would place the notification in the facility's operating record as required by § 257.105(k)(3).

1.3 Extension Report Requirements

The Legacy Rule applicability extension report (extension report) consists of three parts. First, the extension report must include general identifying information about the potential legacy impoundment, including the name associated with the unit, and information about the location of the unit at the facility. This information is the same as the first three elements of the applicability report under § 257.100(f)(1)(i)(A) through (C). Second, the extension report must include a statement by the owner or operator that available information does not provide a sufficient basis to determine that the inactive impoundment contained free liquids on or after October 19, 2015. Finally, the applicability extension report must contain a written field investigation work plan. The purpose of this plan is to describe the approach the owner or operator intends to follow to determine whether the inactive impoundment contains free liquids.

2 General Information Requirements

Following a restatement of the regulatory text, each requirement is addressed in *italics*.

2.1 Owner Contact information

§ 257.100(f)(1)(i)(A). The name and address of the person(s) owning and operating the legacy CCR surface impoundment with their business phone number and email address.

The Ben French slag pond is owned by Black Hills Power. The corporate address for Black Hills Power: is 7001 Mount Rushmore Road, P.O. Box 1400, Rapid City, SD 57709.

BHP's business phone number is 888.890.5554.

BHP's corporate email address is Contact customer service | Black Hills Energy or <https://www.blackhillsenergy.com/contact-customer-service>

2.2 CCR Surface Impoundment Name

§ 257.100(f)(1)(i)(B). The name associated with the legacy CCR surface impoundment.

The name commonly associated with the potential legacy CCR surface impoundment is Ben French slag pond.

2.3 Location

§ 257.100(f)(1)(i)(C). Information to identify the legacy CCR surface impoundment, including a figure of the facility and where the unit is located at the facility, facility address, and the latitude and longitude of the facility.

The facility is located at 409 Deadwood Avenue, on the west side of Deadwood Avenue and south of North St Onge Street, within the city of Rapid City, South Dakota. The facility is located at Latitude 44.088220 N, Longitude 103.263914 W. Figure 1 shows the general location of the facility.

3 Owner/Operator Statement Requirements

Following a restatement of the regulatory text, each requirement is addressed in *italics*.

§ 257.100(f)(1)(iii)(A)(2). A statement by the owner or operator that to the best of their knowledge or belief, existing and available information does not provide a sufficient basis to determine that the unit contained free liquids on or after October 19, 2015.

3.1 Statement

I, Mark Lux, have personally examined and am familiar with the information submitted in this applicability extension report and all attached documents, and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. To the best of BHP's knowledge or belief, as current owner of the Ben French slag pond, existing and available information does not provide a sufficient basis to determine that the unit contained CCRs and free liquids on or after October 19, 2015.

A handwritten signature in black ink, appearing to read "Mark Lux".

Mark Lux
Vice President Power Delivery

November 8, 2025

4 Field Investigation Workplan

The required elements of the Ben French field investigation work plan are discussed below. Following a restatement of the regulatory text, each requirement is addressed in *italics*.

4.1 Site Characterization Approach

§ 257.100 (f)(1)(iii)(A)(3)(i). A detailed description of the approach to characterize the physical, topographic, geologic, hydrogeologic, and hydraulic properties of the CCR in the unit and native geologic materials beneath and surrounding the unit, and how those properties will be used to investigate for the presence of free liquids in the CCR unit.

BHP will use site-specific information including soil boring logs and other geologic and hydrogeologic site information to inform the preparation of a Conceptual Site Model (CSM) for the Ben French slag pond. Preparation of the CSM will require additional field efforts, including but not limited to the utilization of direct measurements and observations which enable the identification CCRs and the measurement of free liquids in CCRs. In a groundwater context, standard piezometers and monitoring wells are common tools used for the direct measurement of water levels in the saturated zone. The presence of free-standing water in a well or piezometer is a direct indicator of free liquids which have drained from pore spaces into the boring under ambient pressures and temperatures.

As indicated earlier in this report, it is thought that most, if not all, CCRs were removed and transported offsite for disposal during coal facility decommissioning. If present, however, boiler slag is anticipated to be easily identifiable using visual methods; the color, texture, and composition of the boiler slag stands in sharp contrast to native soils.

4.2 Methods and Tools

§ 257.100 (f)(1)(iii)(A)(3)(ii). A detailed description of the methods and tools that will be employed to determine whether the inactive impoundment contains free liquids, the rationale for choosing these methods and tools, and how these methods and tools will be implemented, and at what level of spatial resolution at the CCR unit to identify and monitor the presence of free liquids.

A critical facet of the site investigation is to understand the physical characteristics of CCRs that are potentially present in the former slag pond. Boiler slag typically has a uniform shiny-black color, resembling crushed coal or black glass. Boiler slag is an angular, coarse-grained CCR having particle sizes ranging from about 0.5 to 5.0 mm in diameter. Boiler slag is created when molten material from the boiler bottom flows into quench water; the rapid cooling causes the molten ash to solidify almost immediately into a black, dense, glassy mass that fractures into sharp, angular particles.

The color, texture, and composition of the boiler slag contrasts with native soils and is expected to allow for the visual identification of CCRs in the Ben French field setting. Should field identification efforts be inconclusive or need further verification, other methods may be used:

Light Microscopy – *This method includes enhanced methods of visual and optical observation. Optical mineralogy is used to view mineral grains under polarized light. Non-ash grains are generally birefringent (show colorful patterns) under polarized light. CCR grains, particularly*

bottom ash and boiler slag, are opaque under polarized light and generally do not exhibit birefringence. This is because glassy materials tend to be amorphous in their crystalline structure due to melting and fast cooling.

Laboratory Geochemical/Mineralogic Tests – *Techniques like X-Ray Diffraction (XRD) alone or in combination with X-Ray Fluorescence (XRF) may be used to distinguish unique mineralogic assemblages rather than individual elements. Because minerals tend to form in certain conditions of pressure and temperature they can offer clues to the material's origin. This method can also be used independently to estimate the relative amounts of crystalline and non-crystalline material in the sample. This in turn can point toward the proportion of the sample that is amorphous ash or combusted material. The identification of certain minerals formed only at high temperatures, such as mullite, would indicate a CCR source.*

The use of piezometers or monitoring wells to determine CCR thickness and the presence of free liquids appears to be appropriate for the site. Accordingly, BHP's field investigation included the extensive use of piezometers. The footprint of the former the slag pond is nearly square, approximately 100' per side, yielding an area of approximately 0.24 acres (10,455 square feet). Approximately one-half of the slag pond area appears to be paved and is used for equipment parking/storage. Site work included the drilling and installation five piezometers within the former slag pond perimeter at a rate of approximately one piezometer per 2,100 square feet. The driller used a 7822DT GeoProbe™ to collect continuous sample core in 5' intervals utilizing direct-push technology. A geologist/engineer logged the soil and observed the drilling and determined piezometer screen depth. Samples of solids (CCRs, if present, and native soils) were collected at 2.5' intervals and retained for future laboratory analysis, if deemed necessary.

Piezometers were installed using 1" diameter PVC with 5' or 10' well screens. Sand was placed around and above the well screen (as applicable) and bentonite seal was placed above the sandpack to the ground surface. If there are any free liquids in the pore spaces around the piezometer screen, they will drain into the piezometer and the water level in the standpipe will rise to a level related to the level of saturation in the pore spaces. In essence, the water level in the piezometer is a direct measure of the readily separable liquids in the vicinity of the piezometer and will provide direct evidence of the presence of free liquids.

4.3 Groundwater elevation determination

§ 257.100 (f)(1)(iii)(A)(3)(iii). A detailed description of how groundwater elevations will be determined, and at what level of spatial resolution, in relation to the sides and bottom of the CCR unit and how any interaction of the groundwater table with the CCR unit will be evaluated, and at what level of spatial resolution.

The top of casing (TOC) and ground surface elevation for each well have been surveyed to 0.1 foot accuracy. Groundwater elevations have been and will continue to be determined manually, using an electric water level tape by field personnel. The site has a small footprint and the anticipated number of measuring points (five piezometers within the 0.24 acre site) is relatively low. Accordingly, the water level measurements would be taken in a relatively narrow time window and would provide a point-in-time snapshot of water levels at Ben French.

4.4 Stormwater evaluation

§ 257.100 (f)(1)(iii)(A)(3)(iv). A plan for evaluating stormwater flow over the surface of the unit, stormwater drainage from the unit, and stormwater infiltration into the unit and how those processes may result in the formation of free liquids in the CCR unit. This plan must include a current topographic map showing surface water flow and any pertinent natural or man-made features present relevant to stormwater drainage, infiltration and related processes.

Stormwater flow and direction were determined by utilizing a one-foot interval contour map of the site and surrounding area. See Figure 2. Climatic conditions (relatively low local precipitation, coupled with high evapotranspiration rates) tend to diminish the likelihood of stormwater infiltration. Further, hard surfacing (pavement) over approximately one-half the site promotes positive drainage and function to greatly reduce the infiltration of stormwater.

If CCRs are found during the field investigation, infiltration into the slag pond will be estimated using EPA's HELP Model. The site-specific conditions discussed above will be input to estimate infiltration across the site. The one-foot contour map will be reviewed to identify areas that could be interpreted to collect or accumulate stormwater. Finally, the contour map will undergo ground-truthing via visual inspection, focusing on evidence of erosion or stormwater ponding.

4.5 Estimated Timeline

§ 257.100 (f)(1)(iii)(A)(3)(v). An estimated timeline to complete the workplan and make a determination if the CCR unit contains free liquids.

BHP began implementing the field work plan during April 2025 and work will continue through the year to capture seasonal variation in groundwater elevations. Drilling and piezometer installation at the site were completed in early April 2025. After piezometer installation, water levels will be obtained on a periodic basis for at least six to twelve months, in order to observe any seasonal fluctuations in the potentiometric surface. As this effort will take additional time, this is the third and final extension report that will be prepared and posted to BHP's publicly available CCR compliance data website.

4.6 Interpretation of Results

§ 257.100 (f)(1)(iii)(A)(3)(vi). A narrative discussion of how the results from implementing the workplan will determine whether the unit contains free liquids specified.

If there is free liquid in the pore spaces in CCRs around the piezometer screen, it will drain into the piezometer and the water level in the standpipe will rise to a level related to the level of saturation in the pore spaces. In essence, the water level in the piezometer is a direct measure of the readily separable liquids in the vicinity of the piezometer and will provide direct evidence of the presence of free liquids. EPA indicated it intends to revise the Legacy Rule, which may impact definitions, interpretations, and ultimately, the Legacy Rule applicability determinations for this site and others.

4.7 Anticipated Problems

§ 257.100 (f)(1)(iii)(A)(3)(vii). A narrative discussion describing any anticipated problems that may be encountered during implementation of the workplan and what actions will be taken to resolve the problems, and anticipated timeframes necessary for such a contingency.

The direct-push drilling method may not be able to penetrate well-indurated layers of CCRs, if present at the site. The initial response will be to offset and attempt to penetrate at 5'-10' away from the initial boring. If offsetting the boring location does not lead to a successful piezometer installation, the drilling method will then be modified, using GeoProbe™ auger attachments. Should these methods be determined to be unworkable, a larger hollow-stem auger (HSA) rig will be utilized to complete the borings. It is anticipated that a HSA rig could be mobilized to the site within 30 days of determining the need. Finally, a test pit or open excavation may be utilized in certain areas if deemed appropriate.

4.8 Engineer Certification

§ 257.100 (f)(1)(iii)(A)(3)(viii). The owner of the CCR unit must obtain a written certification from a qualified professional engineer stating that the field investigation work plan meets the requirements of paragraph (f)(1)(iii)(A)(3) of this section.

Please see qualified professional engineer certification at beginning of this report.



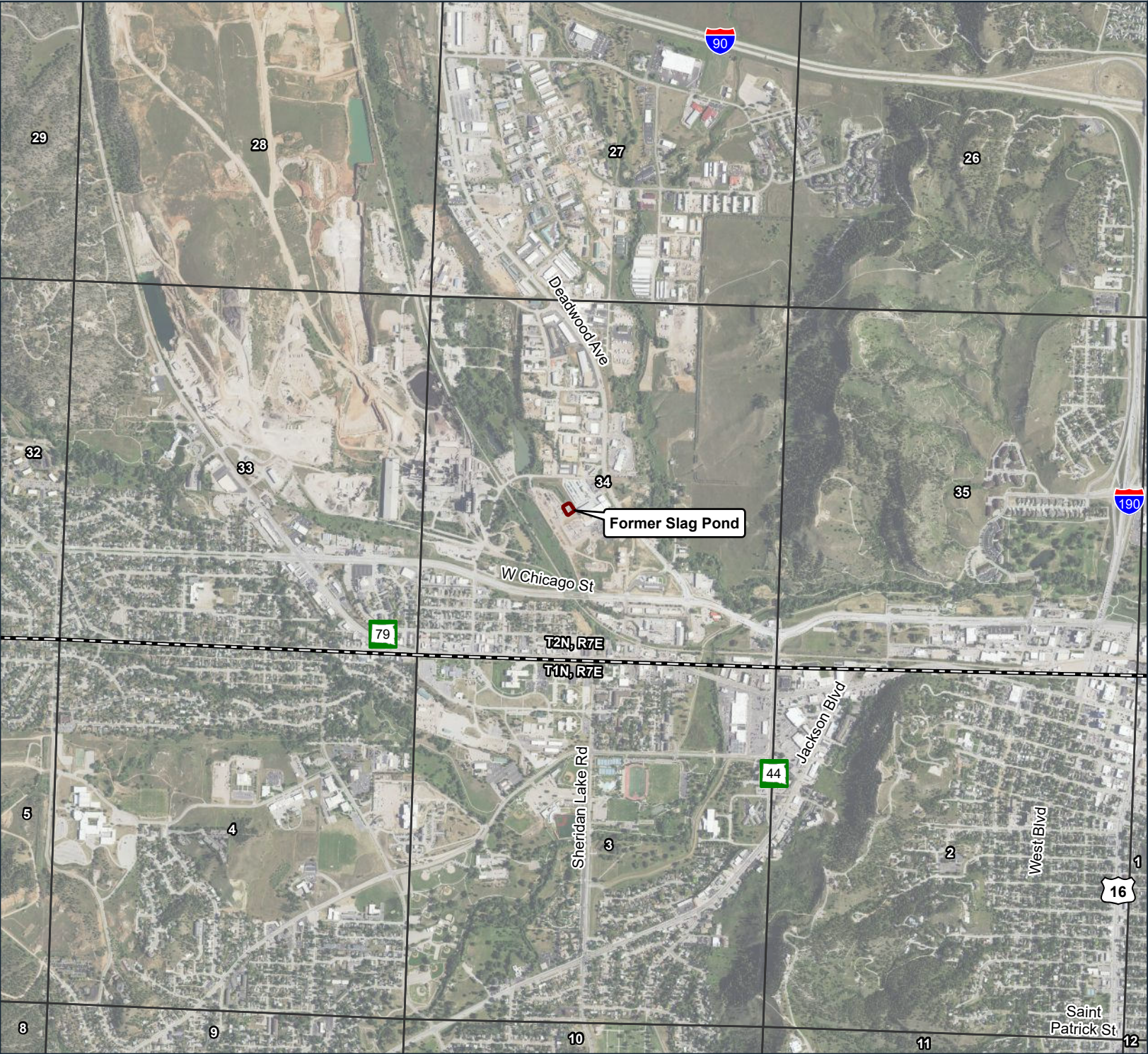
Figures





Figure 1
Site Location Map





 Former Slag Pond (approximate)

 Public Land Survey Township

 Public Land Survey Section



0 2,000
Feet

Imagery Source: USDA NAIP (2022)

Site Location
Ben French
Generating Station
Black Hills Power
Rapid City, SD

FIGURE 1

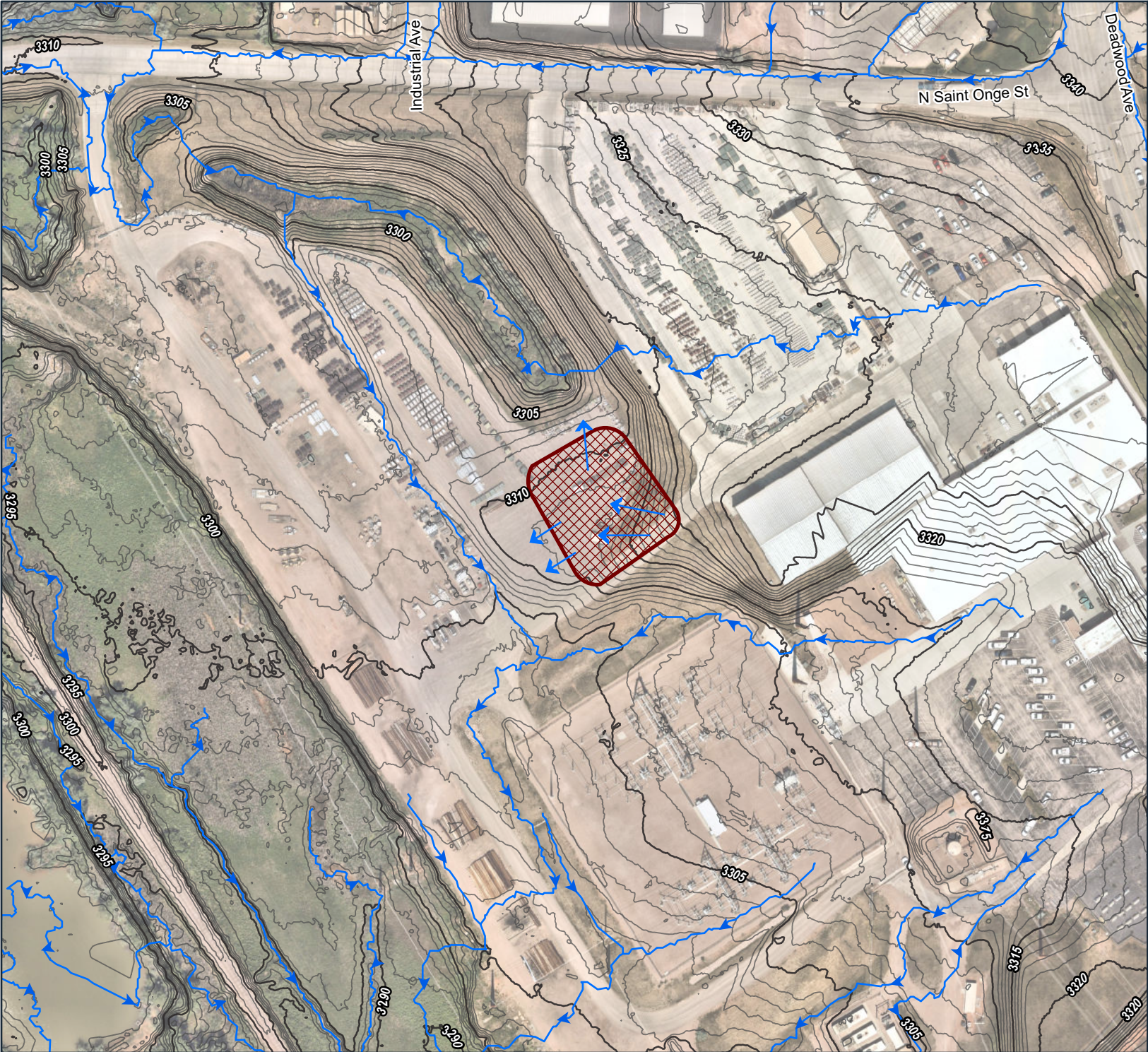




Figure 2

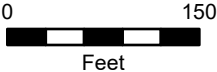
Stormwater Flow Map





-  Former Slag Pond (approximate)
-  5-foot Contour
-  1-foot Contour
-  Water Flow Direction

Notes:
Elevation data derived from 2018
LiDAR data, downloaded from the
USGS National Map.



Imagery Source: NearMap (July 2024)

Surface Water Flow
Ben French
Generating Station
Black Hills Power
Rapid City, SD

FIGURE 2



Appendix A

EPA Memorandum





OFFICE OF LAND AND EMERGENCY MANAGEMENT

WASHINGTON, D.C. 20460

July 10, 2025

MEMORANDUM

SUBJECT: Memorandum: Considerations for the Identification and Elimination of Free Liquids in Coal Combustion Residuals (CCR) Surface Impoundments and Landfills (40 CFR Part 257, Subpart D). Docket ID No. EPA-HQ-OLEM-2020-0107-1068

FROM: Steven Cook, Principal Deputy Assistant Administrator **STEVEN COOK**

TO: Regional Land, Chemical, and Redevelopment Division Directors

Digitally signed by
STEVEN COOK
Date: 2025.07.10
15:02:16 -04'00'

The EPA included a document titled, “*Memorandum: Considerations for the Identification and Elimination of Free Liquids in Coal Combustion Residuals (CCR) Surface Impoundments and Landfills (40 CFR Part 257, Subpart D) April 19, 2024*” (“Free Liquids Memorandum”) in the docket for the final Legacy CCR Surface Impoundments and CCR Management Units Final Rule on May 8, 2024. EPA-HQ-OLEM-2020-0107-1068. The Free Liquids Memorandum was drafted in response to public comments received on the proposed rule (88 Fed. Reg. 31982, May 18, 2023), to provide regulated entities with information on available methods for determining whether free liquids are present in CCR units, as required under the regulatory performance standards. *See*, 40 C.F.R. §§ 257.53, 257.102(d).

Since publication of the final rule, the EPA has received information that the Free Liquids Memorandum has caused confusion, including among the regulated community. EPA understands that some have interpreted the Free Liquids Memorandum to create new requirements or modify existing requirements that must be met to comply with the federal CCR regulations in 40 C.F.R. part 257. Others have indicated that they have treated it as setting a performance standard and incorporated it into specifications for work to be performed. To address this confusion, the EPA is issuing the following clarification.

The Free Liquids Memorandum does not impose legally binding requirements on the EPA, states, or the regulated community. It is not a regulation, nor does it augment or modify the existing regulations in 40 C.F.R. part 257. States and regulated entities are not required to adopt any of the methods discussed in the Free Liquids Memorandum or to follow any of the other statements contained therein. States and regulated entities must comply only with applicable regulatory and statutory requirements.

Given the confusion caused by the Free Liquids Memorandum, it should not be relied upon or used by EPA personnel to carry out the Agency's work to implement the regulatory requirements of this program. Additionally, the EPA intends to provide further clarification on these issues at a later time.

cc: Mallory Richardson, Principal Deputy Associate Administrator
Office of Policy

Carolyn Hoskinson, Office Director
Office of Resource Conservation and Recovery

Andrew Baca, Deputy Office Director
Office of Resource Conservation and Recovery

