Haley Griffith (adpce.ad)

Subject: RE: Craighead County Solid Waste Disposal Authority (SWDA) Class 1 Landfill - Notice of Deficiency for Cell 5 Construction Quality Assurance Certification Report

From: Paul Crawford <pcrawford@olsson.com>
Sent: Friday, February 6, 2026 3:44 PM
To: Richard Bennett (adpce.ad) <Richard.Bennett@arkansas.gov>; Angela Sparks <angela@ccswda.com>
Cc: Greg Banic (adpce.ad) <Greg.Banic@arkansas.gov>; Angela Sparks <angela@ccswda.com>; Robert Hendrix <rhendrix@ccswda.com>; David Passmore <david@ccswda.com>
Subject: Re: Craighead County Solid Waste Disposal Authority (SWDA) Class 1 Landfill - Notice of Deficiency for Cell 5 Construction Quality Assurance Certification Report
Importance: High

Richard,

On behalf of Craighead County Solid Waste Disposal Authority, please see the attached responses to your Notice of Deficiencies.

As the facility is in desperate need of disposal space, please let me know if you have any further questions as soon as you can.

Paul

Paul Crawford, P.E., P.G.
Senior Team Leader / Environmental

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From: Richard Bennett (adpce.ad) <Richard.Bennett@arkansas.gov>
Sent: Thursday, February 5, 2026 1:52 PM
To: Angela Sparks <angela@ccswda.com>
Cc: Paul Crawford <pcrawford@olsson.com>; Greg Banic (adpce.ad) <Greg.Banic@arkansas.gov>; Charles Hurt (adpce.ad) <Charles.Hurt@arkansas.gov>; Christopher Krou (adpce.ad) <Christopher.Krou@arkansas.gov>
Subject: Craighead County Solid Waste Disposal Authority (SWDA) Class 1 Landfill - Notice of Deficiency for Cell 5 Construction Quality Assurance Certification Report

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Dear Ms. Sparks,

Please find attached to this email DEQ's Notice of Deficiency Letter for the Cell 5 Construction Quality Assurance Report for the Craighead County Solid Waste Disposal Authority (SWDA) Class 1 Landfill. If you have any questions, please feel free to contact me using the information provided below.

Respectfully,

Richard Bennett, PE
Permit Engineer
E&E | Environmental Quality | Land Resources
e: richard.bennett@arkansas.gov
t: 501-682-0861

February 6, 2026

Arkansas Department of Energy and Environment Division of Environmental Quality
ATTN: Mr. Richard Bennett, PE
5301 Northshore Drive
North Little Rock, AR 72118

RE: Response to Notice of Deficiency for Cell 5 Construction Quality Assurance Report for the Craighead County Solid Waste Disposal Authority Class 1 Landfill
Permit Tracking No. 0254-S1-R5 AFIN: 16-00199

Dear Mr. Richard Bennett, PE:

On behalf of the Craighead County Solid Waste Disposal Authority (CCSWDA), Olsson, Inc. is responding to the Notice of Deficiency letter related to the CCSWDA Cell 5 Construction Quality Assurance (CQA) Report dated February 5, 2026. Listed below are the identified deficiencies and the facility's responses.

Deficiency No. 1 - Section 5.2.2 Construction Procedures: It appears the protective cover sample failed the one-inch sieve test (Sample ID: PCL) required by the approved CQA Plan (Doc ID 0254-S1-R4_Class 1 Permit Major Modification-Melissa Vaught to ePortal_20241202.pdf). Please provide justification that the material meets the CQA Plan design specifications and not it as a deviation.

Response:
The material used for the protective cover layer for the Cell 5 construction project was a sand that had some gravel and had a higher amount of gravel than listed in the CQA Plan under Table 3, which requires a higher amount of sand (at least 95% passing the ¼-inch sieve). However, since the material still met the USCS classification (SW, GW, or GP – preconstruction sample was classified as GP-GM, and the construction sample was classified as SP-SM) and had a significant amount of sand and maintained the required permeability requirement of greater than 1×10^{-3} cm/sec, it was approved for the project.

Deficiency No. 2 – Appendix M Geomembrane – Conformance Testing Results:

a. Please provide justification for using ASTM Method D5199 for thickness and not D5994 as required by the approved CQA Plan.

b. It appears that Geomembrane Sample Number 3119010171 has an average thickness of 59 mils when the approved CQA Plan requires a value of at least 60 mils. Was this material used? If so, please provide justification that the material meets the CQA Plan design specifications and not it as a deviation.

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Response:

a. ASTM D 5199 is for testing ***smooth*** geomembrane thickness; ASTM D 5994 is for testing ***textured*** geomembrane thickness. In accordance with the construction documents for Cell 5 (which were submitted to DEQ and are included in Appendix B of the CQA report), smooth 60-mil HDPE geomembrane liner was installed on the bottom of the cell and textured 60-mil HDPE geomembrane liner was installed on the side-slopes of the cell. Therefore, the conformance testing results included in Appendix M are for both smooth and textured liner (the first page of the summary on page 1 is for the smooth liner samples and the second page of summary is for the two textured liner samples). ASTM D5994 cannot be used to test smooth geomembrane samples as ASTM D5199 is the appropriate test. The CQA Plan incorrectly only includes ASTM D5994; it should also include ASTM D5199 as both types of liner will be used in construction of waste disposal cells at the landfill.

b. The referenced test is for a 60-mil HDPE ***textured*** geomembrane roll. As noted in Table 5 of the facility's CQA Plan, there can be variance in the thicknesses due to the texturing of the membrane. Measuring the exact thickness of a textured geomembrane is much more difficult than a smooth geomembrane and the variability from the specification is common. The material was approved since the lowest result for 8 of 10 tests was within 10% and the lowest individual result was within 15%, as noted in Table 5 of the CQA Plan.

Deficiency No. 3 – Appendix V Protective Cover and Washed Gravel – Test Results:

a. There is one sample of gravel for the leachate sump and one for the leachate trench but no preconstruction sample. Please explain this deviation from the approved CQA Plan (Doc ID 0254-S1-R4_Class 1 Permit Major Modification-Melissa Vaught to ePortal_20241202.pdf).

b. It appears that the leachate sump gravel and the leachate trench gravel did not pass the one-quarter inch sieve requirement specified in the approved CQA Plan because the submitted data sheets do not include results for the one-quarter inch sieve analysis. Please provide information that demonstrates the gravel used to construct the sump and the trench meets the specification in the approved CQA Plan.

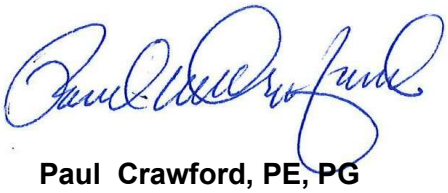
Response:

a. The material requirement listed in Section 6 of the CQA Plan is for the "Leachate Drainage Material", which was labeled as the "Protective Cover Layer" on the construction drawings. This is the permeable material that is placed on the entire cell bottom. The gravel material for the leachate collection trench and the sump are not included in the CQA Plan. That material was specified in the construction documents for the project – Section 02227 for the leachate trench gravel and

Section 02228 for the leachate collection sump. Note that the specifications only require a pre-construction test for both types of gravel. Both types of gravel met the requirements of the specification and were approved for use. The specification sections are attached to this response.

b. See response listed above as the material used in the collection trench and the sump met the specified requirements.

Respectfully Submitted,
Olsson, Inc.



Paul Crawford, PE, PG
Senior Team Leader

Enclosures Cell 5 Project Specification Sections 02227 and 02228

CC: Ms. Angela Sparks, CEO, Craighead County Solid Waste Disposal Authority

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SECTION 02227
WASHED GRAVEL

PART 1 GENERAL

1.01 SUMMARY

A. Section includes description of granular material placed in the gas collection trenches, the leachate collection trench, and leachate collection sump in landfill cell as shown on Drawings.

B. Related Sections

1. Section 02220 – Earthwork.
2. Section 02715 – Leachate Collection System Piping.

1.02 REFERENCES

A. *Construction Quality Assurance Plan*, Legacy Landfill, November 2024.

B. ASTM:

1. ASTM D 422, Standard Test Method for Particle-Size Analysis of Soils.
2. ASTM D 448, Standard Classification for Sizes of Aggregate for Road and Bridge Construction.
3. ASTM D 2487, Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System).
4. ASTM D 3042, Standard Test Method for Insoluble Residue in Carbonate Aggregates.

1.03 SUBMITTALS

A. Submit under provisions of Section 01300.

B. Test Results: Contractor shall submit written reports from materials supplier of all specified tests, showing conformance of the materials and constructed work with the Specifications.

PART 2 PRODUCTS

2.01 WASHED GRAVEL FOR LEACHATE COLLECTION TRENCH

A. Material shall be a washed gravel and classified as a GP or GW in accordance with the Unified Soil Classification System and ASTM D 422 and D 2487.

B. Material shall be obtained from offsite sources and shall be relatively homogeneous, natural granular soils that are free of debris, foreign objects, large rock fragments, roots, and organics.

C. The material shall be a washed gravel with a gradation matching the ASTM D 448 Size Number 57 standard gradation. The maximum particle size shall be three inches in diameter and shall have less than 5% fines

D. The material shall have a maximum calcium carbonate content of 15% in accordance with ASTM D 3042.

PART 3 EXECUTION

3.01 GENERAL

A. Place material only when underlying composite liner system is completed.

B. Place to the lines and grades shown on the Drawings.

C. Place material in single uniform lifts.

D. Do not compact material.

3.02 QUALITY ASSURANCE/QUALITY CONTROL

A. Washed gravel shall be tested as outlined in Table 02227-1 below.

TABLE 02227-1
WASHED GRAVEL
PRE-CONSTRUCTION TESTING REQUIREMENTS

TEST	ASTM METHOD	PASSING CRITERIA
Pre-construction Testing: Minimum of one test per source		
Grain Size Analysis	D 422	Minimum of 95% passing 1-inch sieve and less than 5% passing the No. 8 sieve.
USCS Classification	D 2487	GW or GP
Aggregate Classification	D 448	Size Number 57 standard gradation
Calcium Carbonate Content	D 3042	Maximum 15%

END OF SECTION

SECTION 02228
BALLAST STONE

PART 1 GENERAL

1.01 SUMMARY

A. Section includes description of granular material placed in leachate collection sump in landfill cell floor.

B. Related Sections.

1. Section 02200 – Earthwork.
2. Section 02220 – Landfill Excavation and Backfilling.

1.02 REFERENCES

A. *Construction Quality Assurance Plan*, Legacy Landfill, November 2024.

B. ASTM:

1. ASTM D 422, Standard Method for Particle-Size Analysis of Soils.
2. ASTM D 448, Standard Classification for Sizes of Aggregate for Road and Bridge Construction.
3. ASTM D 2487, Standard Test Method for Classification of Soils for Engineering Purposes.
4. ASTM D 3042, Standard Test Method for Insoluble Residue in Carbonate Aggregates.

1.03 SUBMITTALS

A. Submit under provisions of Section 01300.

B. Test Results: The testing laboratory shall submit written reports of all specified tests, showing conformance of the materials and constructed work with the specifications.

PART 2 PRODUCTS

2.01 BALLAST STONE FOR LEACHATE COLLECTION SUMP

A. Ballast stone shall be rock, free from dirt, clay balls, organic material, and have a low calcium content.

B. Shall be a washed rock and classified as a GP or GW in accordance with the Unified Soil Classification System and ASTM D 422 and D 2487.

C. Stone shall be 2-1/2-inches to 1-inches in diameter and free of fines, with a gradation matching the ASTM D 448 Size Number 23 standard gradation.

D. The material shall have a maximum calcium carbonate content of 15% in accordance with ASTM D 3042.

PART 3 EXECUTION

3.01 GENERAL

A. Place material only when underlying composite liner system is completed.

B. Place to the lines and grades shown on the Drawings.

C. Place material in single uniform lifts.

D. Do not compact material.

3.02 QUALITY ASSURANCE/QUALITY CONTROL

A. Ballast stone for the leachate collection sump shall be tested as outlined in Table 02228-1 below.

TABLE 02228-1
BALLAST STONE
PRE-CONSTRUCTION TESTING REQUIREMENTS

TEST	ASTM METHOD	PASSING CRITERIA
Pre-construction Testing: Minimum of one test per source		
Grain Size Analysis	D 422	2-1/2 inch to 1-inch size stone with less than 5% passing the 1/2-inch sieve
USCS Classification	D 2487	GW or GP
Aggregate Classification	D 448	Size Number 23 standard gradation
Calcium Carbonate Content	D 3042	Maximum 15%

END OF SECTION