

West Des Moines, IA

PROJECT: Mahaska Co, FY25-27 On-Call Support, IA 27224360.00 DATE: 7/8/2026

SUBJECT: Mahaska County Sanitary Landfill, Binns & Stevens MSWLF Unit - 62-SDP-01-74P - Response to DNR Comments Regarding the 2025 AWQR TRANSMITTAL ID: 00001

PURPOSE: For your approval VIA: Info Exchange

FROM

NAME	COMPANY	EMAIL	PHONE
Nathan Ohrt West Des Moines, IA	SCS Engineers	NOhrt@scsengineers.com	+1-515-415-9220

TO

NAME	COMPANY	EMAIL	PHONE
Mike Smith 502 East 9th Street Des Moines IA 50319-0034 United States	Iowa, State of	mike.smith@dnr.iowa.gov	515-725-8200

REMARKS: Good afternoon Mike-

SCS Engineers, on behalf of the Mahaska County Solid Waste Management Commission, is submitting for download a response to DNR comments dated May 5, 2026 (Doc #117043) for the Binns & Stevens MSWLF unit at the Mahaska County Sanitary Landfill. If you have any questions or comments regarding this response, please contact me at the number below. Thank you.

Nathan Ohrt
Senior Project Professional
SCS Engineers
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Transmittal

DATE: 7/8/2026
TRANSMITTAL ID: 00001

DESCRIPTION OF CONTENTS

QTY	DATED	TITLE	NOTES
1	7/8/2026	08_08_2026_Mahaska County Sanitary Landfill, Binns & Stevens MSWLF Unit - 62-SDP-01-74P - Response to DNR Comments Regarding the 2025 AWQR.pdf	

COPIES:

Joe Farris	(Mahaska County Solid Waste Management Commission)
Nathan Ohrt	(SCS Engineers)
Becky Jolly	

July 8, 2026
File No. 27224360.00

Mr. Mike Smith, P.E.
Iowa Department of Natural Resources
Land Quality Bureau
6200 Park Avenue
Des Moines, Iowa 50321

Subject: Response to DNR Comments Regarding the 2025 AWQR
Mahaska County Sanitary Landfill
Binns & Stevens MSWLF Unit
Permit No. 62-SDP-01-74P

Dear Mike:

SCS Engineers (SCS), on behalf of the Mahaska County Solid Waste Management Commission, is providing a demonstration that elevated cadmium concentrations in monitoring well DW-24 in the hydrologic monitoring system plan (HMSP) monitoring network for the Binns & Stevens municipal solid waste landfill unit (B&S MSWLF unit) at the Mahaska County Sanitary Landfill are likely due to an alternative source rather than a release from the B&S MSWLF unit.

In correspondence dated March 23, 2026 (Doc #116556), the Iowa Department of Natural Resources (DNR) stated the following:

Since the levels of cadmium at monitoring well MW-24 [sic] exceed both interwell and intrawell prediction limits, please initiate assessment monitoring in accordance with 567 Iowa Administrative Code 113.10(6)"a". Please provide a schedule for initiation of assessment monitoring.

A response to this comment was presented in correspondence dated March 24, 2026 (Doc #116612), which stated that acid mine drainage was likely the source of the elevated cadmium concentrations, as stated below:

The EPA identified increasing concentrations of iron, aluminum, and sulfate, low pH, and the lack of calcareous materials as indicators of acid mine drainage, and that acid mine drainage near monitoring well DW-24 is leading to deteriorating groundwater conditions and may be contributing to the elevated cadmium concentrations. It is recommended that the acid mine drainage be identified as an alternative source, the indicated SSI for cadmium not be confirmed, and that monitoring well DW-24 continue in the detection monitoring program.

In correspondence dated May 5, 2026 (Doc #117043), the DNR commented:

The DNR requires an evaluation of the chemical reasons for the increase in cadmium levels at monitoring well DW-24 before the DNR accepts the assertion that the increase in cadmium is the result of acid mine drainage and not the landfill.

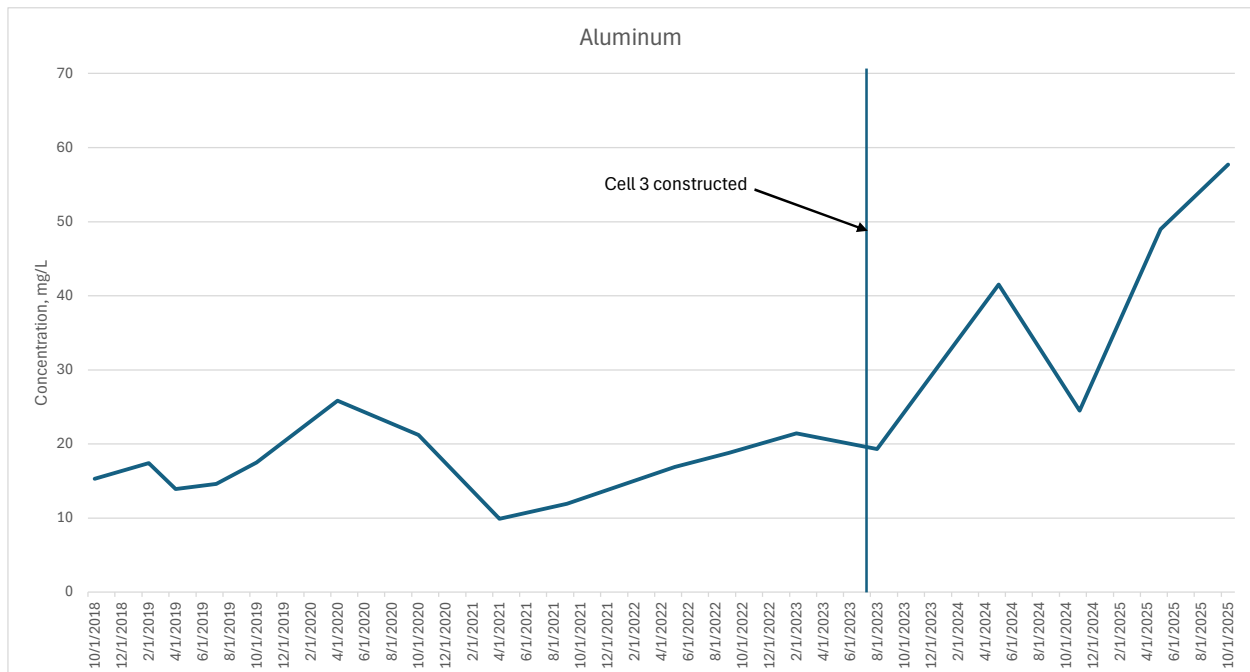


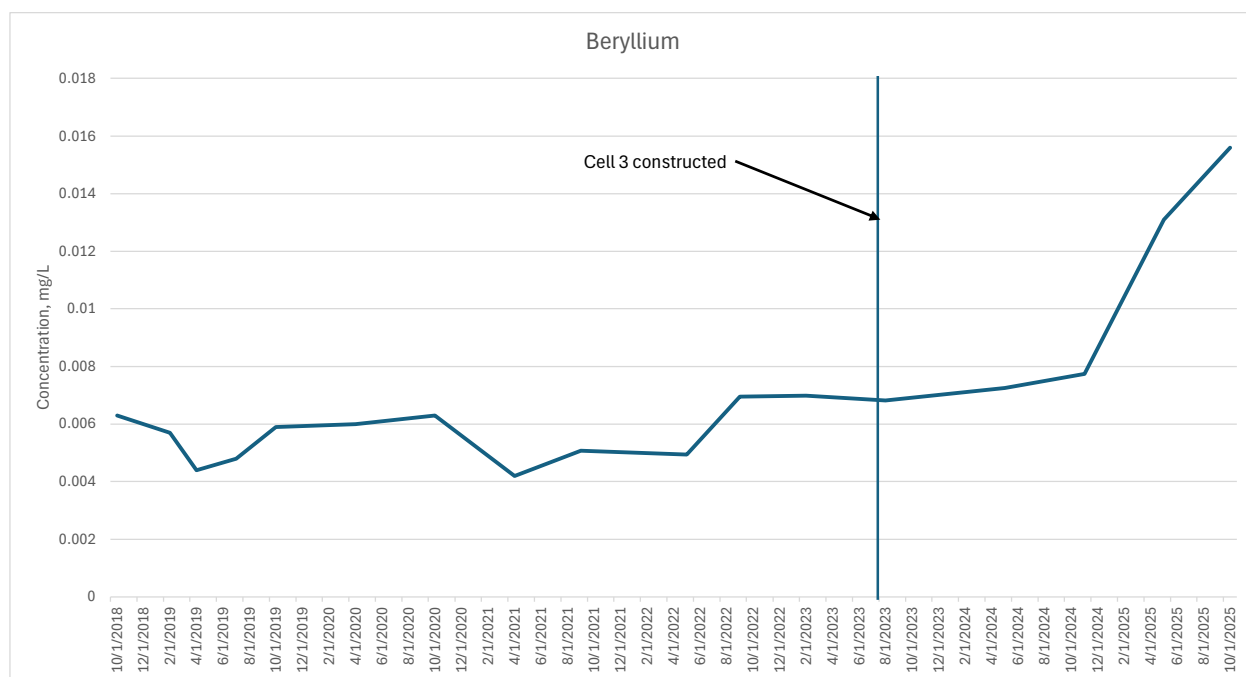
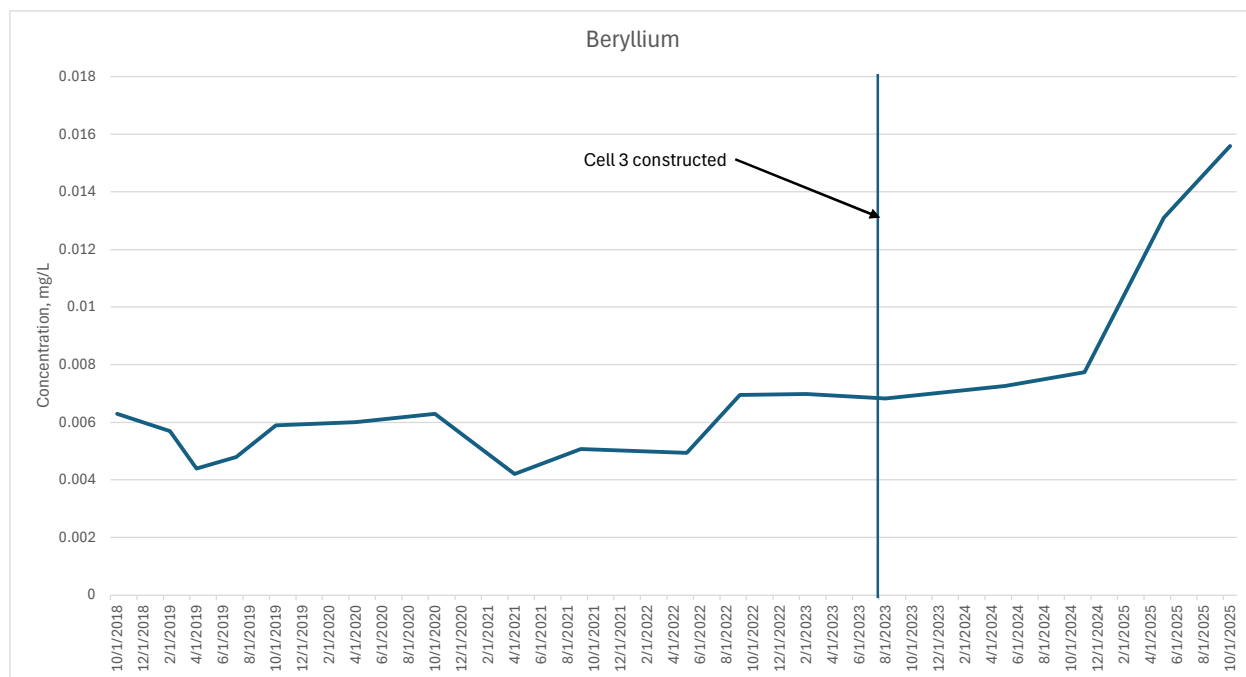
Downgradient monitoring well DW-24 was installed on May 1, 2018. Monitoring well DW-24 is located in the central portion of the site, south of Cell No. 3, constructed in 2023, and the current road. The well is screened in fill material and/or clay spoil that was historically impacted by strip mining activities. Monitoring well DW-24 is not impacted by volatile organic compounds (VOCs), as no VOC concentrations above the reporting limit have been measured in the monitoring well since installation in 2018.

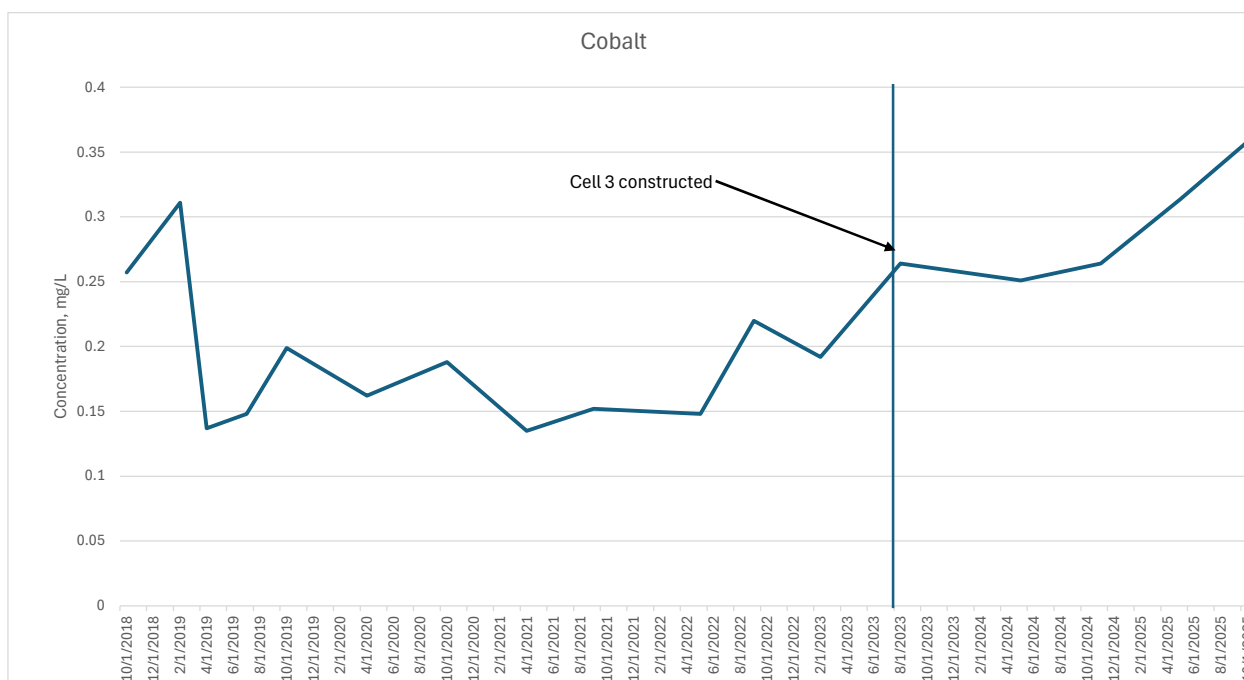
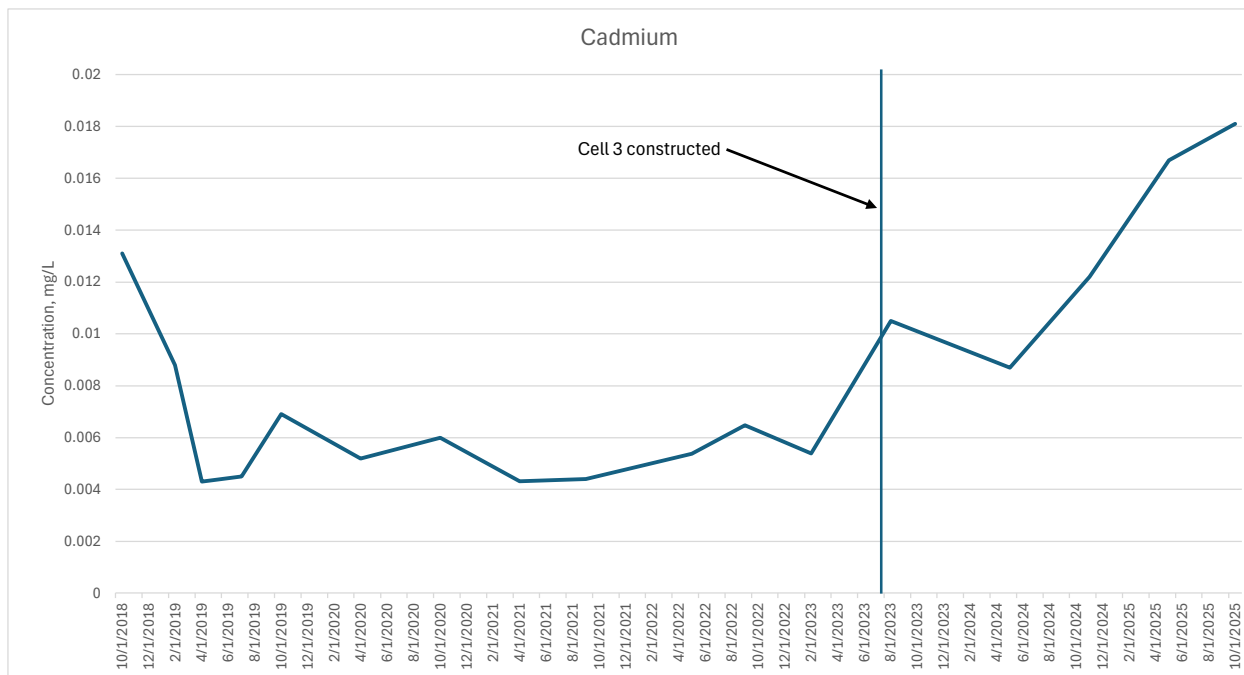
Review of the time series plots showed marked increases in measured concentrations of aluminum, beryllium, cadmium, cobalt, nickel, selenium, and zinc in monitoring well DW-24 following the construction of Cell 3 in 2023, which also correlated with generally decreasing pH levels. As discussed in the article *Geosynthetics and the Minimization of Contaminant Migration through Barrier Systems Beneath Solid Waste* (Rowe, 1998),

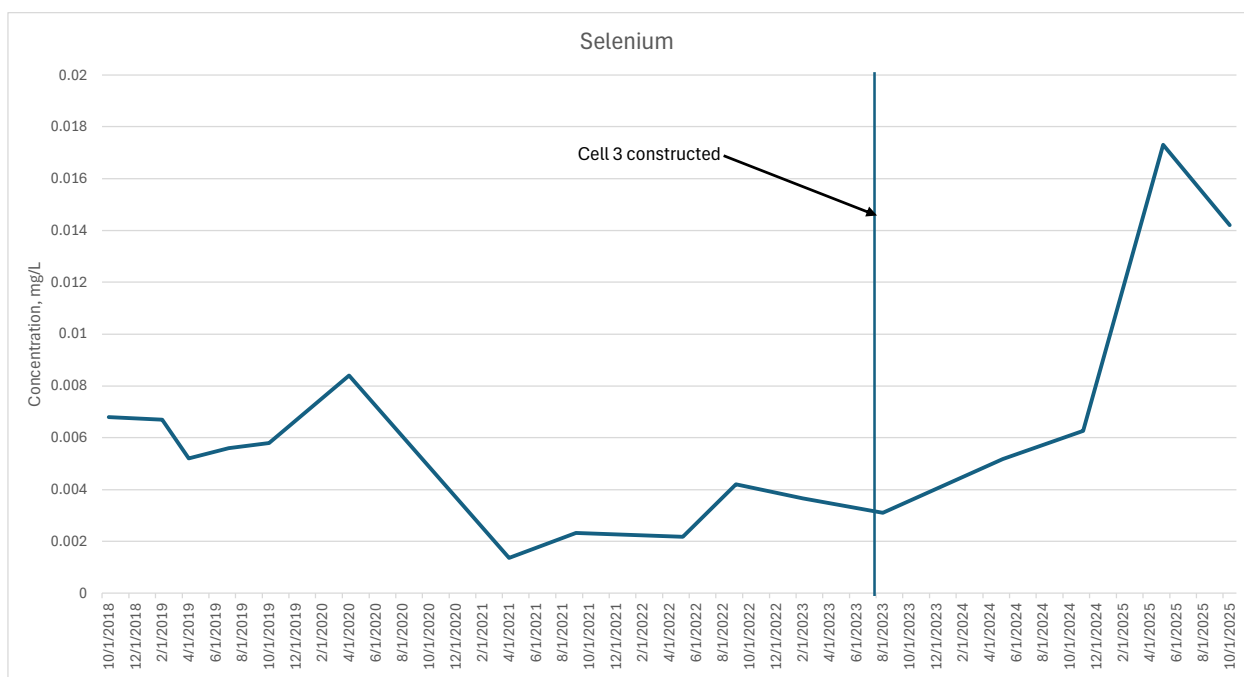
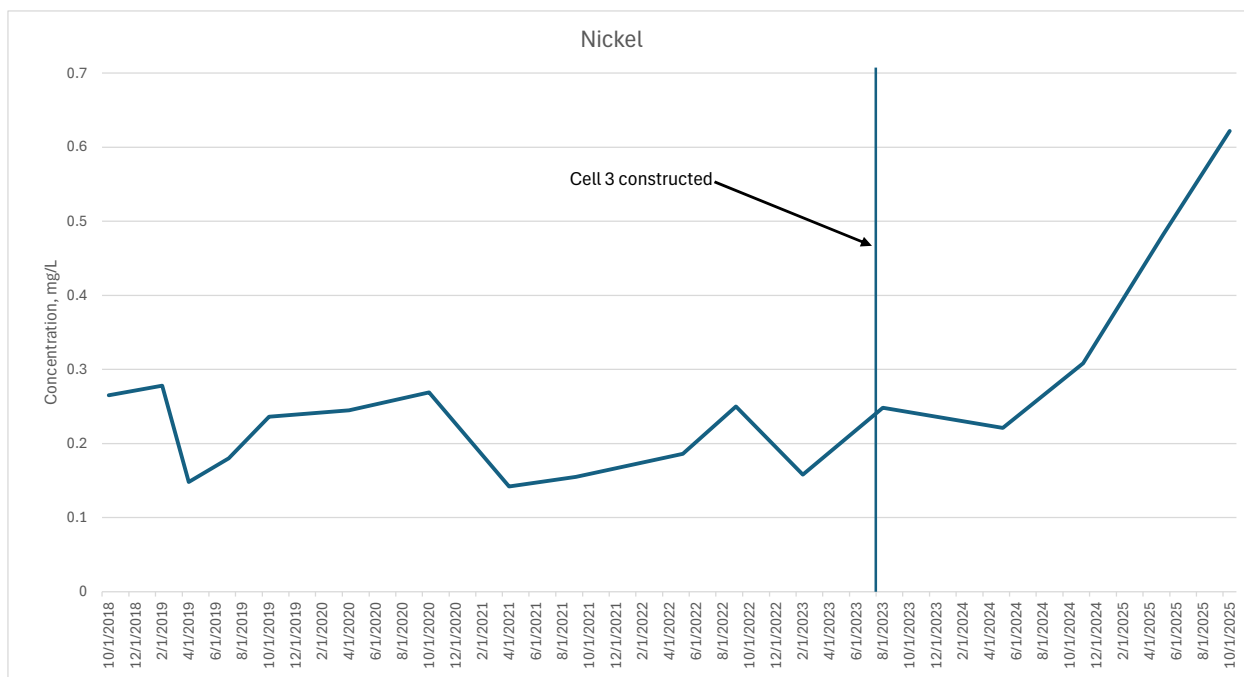
Finally, it noted that it is possible that the construction of a landfill may cause a change in groundwater quality even if there is no contaminant escape from the landfill. This may arise in situations where the construction of the landfill caused a reduction in recharge to an underlying aquifer (the “shadow effect”) and/or a change in groundwater direction in the underlying aquifer as discussed by Rowe et al (1995b). Likewise, construction of a landfill may cause a drop in groundwater levels below the landfill under some circumstances (Rowe et al. 1995b).

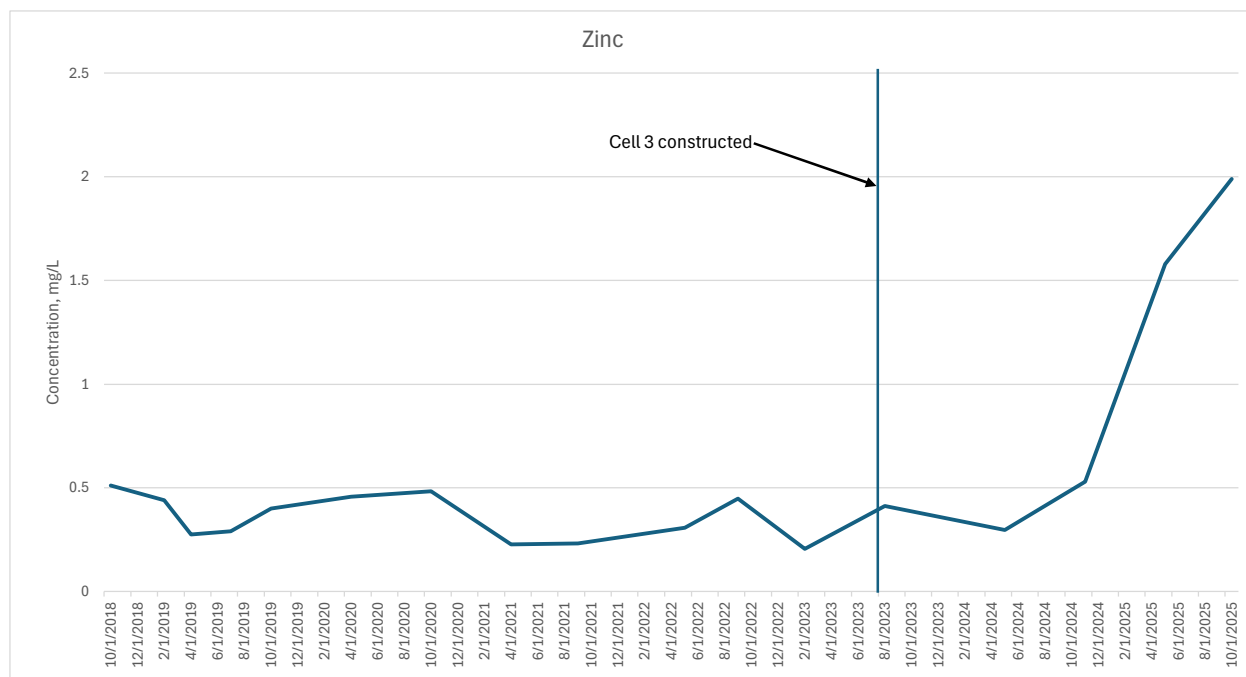
For each of the metals listed above, as shown in the graphs below, the concentration increases coincided with or shortly followed after cell construction, beginning with the August 2023 or 2024 samples.











The construction of Cell 3 would have further disturbed materials in the area of monitoring well DW-24, possibly causing a localized increase in acid mine effects, and would have eliminated surface water infiltration upgradient of DW-24, which previously would have potentially served to dilute acid mine drainage effects in the vicinity of monitoring well DW-24. The soil/rock disturbance, combined with significantly reduced surface water infiltration/dilution occurring post Cell 3 construction, is the likely cause (source) of the increased concentrations of metals measured in groundwater monitoring well DW-24. Some time-lag in the appearance of Cell 3 construction effects at monitoring well DW-24 is expected, as the effects of eliminating surface water infiltration and migration to DW-24 would not be immediate.

Given the lack of VOCs as noted above and the increases in some metal concentrations after cell construction in 2023, it is unlikely that a release from the B&S MSWLF unit is the source of the elevated metal concentrations, including cadmium. It appears that the physical change(s) caused by the construction of the landfill liner affected the groundwater chemistry. Continued monitoring is recommended to investigate this trend. It is recommended that the effect of the liner installation be identified as an alternative source, the indicated SSI for cadmium not be confirmed, and that monitoring well DW-24 continue in the detection monitoring program.

Mike Smith
July 8, 2026
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If you have any questions regarding this response, please contact Nathan Ohrt at (319) 331-9613.

Sincerely,

A handwritten signature in blue ink that reads "Nathan Ohrt".

Nathan Ohrt
Senior Project Professional
SCS Engineers

A handwritten signature in blue ink that reads "Timothy C. Buelow".

Timothy C. Buelow, P.E.
VP, Senior Project Advisor
SCS Engineers

NPO/TCB

Copies: Mr. Joe Farris, Mahaska County Solid Waste Management Commission