



RE: Evidentiary Supplement & Request for Regulatory Determination: Parcel A Off-Site Soil Export (AI #: 189914) (EPA Responses to Request IV - 4 questions)

Begley, Brian <Begley.Brian@epa.gov>

Wed, Sep 2 at 7:41 AM

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Disclaimer: These responses reflect the judgment of the EPA Regional Office site team based on the information that is available on soil removed from the Department of Energy's Paducah Parcel A property that is currently leased to General Matters.

1. Does the Commonwealth consider an off-site soil application resulting in a documented residential ELCR of 3.85×10^{-4} and a hazard index of 1.52 compliant with unrestricted residential safety standards?

This question was specifically directed to the Kentucky Energy and Environment Cabinet. However, note that the EPA's generally acceptable excess lifetime cancer risk (ELCR) range of $1\text{E}-06$ to $1\text{E}-04$ or below the target non-cancer hazard index (HI) of 1 is used by the EPA in making decisions for CERCLA sites. The EPA also typically eliminates chemicals that are naturally occurring or associated with site-specific background conditions from needing a response action [ref. 40 CFR 300.400(b) *Limitations on response*]. The ELCR of $3.85\text{E}-04$ and noncancer hazard index of 1.52 are based primarily on direct exposure to arsenic in subsurface soil. Arsenic was identified as background-related in

Section 7.2.4 of the Leasing Parcel A data package. The exclusion of background risks from arsenic in subsurface soil results in a total ELCR of $1.64\text{E}-06$ and noncancer HI of 0.2. Thus, cancer and noncancer effects are unlikely for a future resident under unrestricted use/unlimited exposure to Leasing Parcel A subsurface soil. Note that the ELCR and HI for arsenic in surface soil were also within EPA's target risk range.

2. Does EPA Region 4 concur that removing soils from the federal footprint and placing them on private land maintains the industrial-only institutional controls required by CERCLA and the Federal Facility Agreement?

The EPA reviewed and provided concurrence on DOE's Parcel A Leasing Data Package and Leasing Agreement. During the review process, the EPA scrutinized these two documents determining that the terms and conditions within the lease agreement were consistent with safety and protection of public health and the environment, given certain restrictions, covenants, notifications, and acknowledgements, including restrictions on groundwater usage, and limitation of the leased area to industrial use. The EPA did not anticipate that soil located on DOE Paducah Parcel A property (being leased to General Matter) would be transported off DOE property to a residential property. The EPA was informed in June by the Kentucky Department for Environmental Protection (KDEP) that soil from the General Matter lease site was observed being transported to a nearby private property on the east side of Hobbs Road. The EPA requested a meeting with DOE and KDEP regarding reassessment of the soil to include evaluation of risks under the residential and recreational use exposure scenarios via comparison of site surface and subsurface soil concentrations to the updated no action levels. The EPA's requested updates included a correction to the gamma shielding factor for radionuclides, which resulted in a 1.5 to 2-fold increase in the previously calculated risk levels for surface and subsurface soil. However, the cancer risk from combined chemical and radiological contaminants of potential concern remained within the EPA's generally accepted CERCLA acceptable risk range. Note that although the noncancer HI (1.63) for surface soil exceeded the EPA's threshold of 1, background-related chromium and manganese were the predominant contributors to the HI. The HI for surface soil excluding background concentrations of these inorganics was 0.5 which is below the threshold of 1. Although Parcel A is restricted to industrial use only, cancer and noncancer

effects are unlikely for a future resident under unrestricted use/unlimited exposure to Leasing Parcel A soil.

3. Do the regulatory agencies accept narrative assumptions regarding wind direction as a legal substitute for empirical laboratory chromium speciation testing for soils placed in residential environments?

Sampling and laboratory data, not Narrative assumptions regarding wind direction, were used in assessing health risks from contaminants in soil. Below is an excerpt from the updated June 25, 2026 *"Additional Human Health Risk Screening of Leasing Parcel A Surface Soil and Subsurface Soil"* that describes the derivation of health risks from Leasing Parcel A soil under the residential and recreational use exposure scenarios, which applied empirical laboratory data for total chromium and reasonable maximum exposure assumptions in accordance with CERCLA guidance. See *Risk Assessment Guidance for Superfund (Parts A, B, D, E and F) Volume I, Human Health Evaluation Manual*. EPA/540/1-89/002, EPA, Office of Emergency and Remedial Response (December 1989); *Role of the Baseline Risk Assessment in Superfund Remedy Selection Decisions*, OSWER Directive 9355.0-30 (April 1991).

2.1 Resident Surface Soil Risks

The resident total excess lifetime cancer risk (ELCR) of the chemical COPCs in surface soil is 1.77E-5 (Table 1), which is within the CERCLA acceptable risk range but exceeds the Kentucky target risk of 1E-6 (the Kentucky target risk is provided as a point of reference). This total ELCR is essentially based entirely on chromium, which is identified in Section 7.2.4 of the Leasing Parcel A data package (DOE 2025) as being within the background range (i.e., while there were 3 exceedances of Paducah site-specific background out of the 15 sample results, the chromium results met all three of the *Kentucky Guidance for Ambient Background Assessment* (KDEP 2004) criteria. The criteria for applying KDEP ambient background values, used previously at PGDP for soil piles, are discussed in Section 7.2.4.1 of the Leasing Parcel A data package (DOE 2025). Also, chromium is assumed to be present as 100% chromium VI [Cr(VI)], which is not a likely realistic assumption. Typically, Cr(VI) is a minor component of chromium in soil. Without consideration of the chromium, the site-related total ELCR of COPCs in Leasing Parcel A surface soil of 1.16E-9 for the resident is less than the Kentucky target range and the CERCLA acceptable risk range.

Also, chromium was not speciated when evaluating Parcel A soils as it was

conservatively assumed that total chromium was 100% hexavalent chromium (the more toxic species), which is a common practice in Superfund risk assessments in the absence of chromium speciation. Wind direction was not a factor considered in the risk assessment for chromium because the risk screening assessments were based on analytically-derived investigation data for total chromium in historical soil samples collected within Parcel A. It was determined that three chromium surface soil results exceeded the provisional background concentrations for the DOE Paducah Site; however, these results did not exceed the Kentucky Energy and Environment Cabinet's ambient or regional background threshold values for soil, which are defined as the concentrations of naturally occurring inorganic substances and ubiquitous anthropogenic inorganic substances in the environment that are representative of the region surrounding the site and not attributable to an identifiable release See *Kentucky Guidance for Ambient Background Assessment* (EEC, 2004). There is no history of chromate treated water use or known release of that type of water in leased Parcel A area.

4. Does the Cabinet consider the continued off-site transfer of soils—now scaling between 115,000 CY (SWPPP) and 144,400.2 CY (GeM Cut/Fill Analysis) of uncontained sheet-flowing media during an active investigation—to be consistent with Kentucky's enforcement authority under KRS Chapter 224 and the Division of Waste Management's regulatory obligations?

This question appears to be specifically addressed to the Kentucky Energy and Environment Cabinet. As stated earlier, the EPA did not anticipate any soil originating on DOE Paducah Parcel A property would be removed and placed on a residential property. After learning about soil being transported offsite, the EPA reviewed the leasing agreement between DOE and the lessee and could not find any restrictions on excess soil being removed off DOE property. The EPA issued a Notification letter to DOE on July 20, 2026, and requested to be notified in a timely manner of any request by a lessee to remove soil from DOE Paducah Property. The recently executed Parcel B lease agreement (785 acres) restricts the Lessee from removing all environmental media (i.e. soil) from DOE property. This removal restriction is in section 5c (excerpt below) of the leasing agreement.

agreed to in writing. All environmental media either: (1) excavated by the DOE Prime Contractor as a SWMU, AOC or anomaly; or (2) excavated by the Lessee shall remain on DOE property outside of the Lease Premises, or, at DOE's discretion, sent to a third-party location for proper handling and/or disposal.

Parcel C (~188-acres) is currently under EPA review and there is a similarly worded restriction in that draft leasing agreement.

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(Paducah Site)

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Subject: Evidentiary Supplement & Request for Regulatory Determination:
Parcel A Off-Site Soil Export (AI #: 189914)

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TO:

Amanda LeFevre, Commissioner, Kentucky DEP
John Lyons, Cabinet Secretary, Kentucky EEC
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April J. Webb, PE, Hazardous Waste Branch, Kentucky DWM
Brian Begley, Federal Facility Agreement Manager, U.S. EPA Region 4
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FROM:

[REDACTED]

Date:

August 21, 2026

SUBJECT:

Evidentiary Supplement & Request for Regulatory Determination: Parcel A Off-Site Soil Export (AI #: 189914)

I. Formal Evidentiary Supplement to Active Investigation

Commissioner LeFevre, thank you for your July 22, 2026, correspondence confirming the Cabinet is actively reviewing site documentation and risk assessments. EPA Region 4 also confirmed via email on August 21, 2026, that it is officially aware of this state-led investigation.

To support this joint oversight, I am submitting the attached Regulatory & Technical Audit, along with standalone Exhibit A data extracts, as material evidence. This audit evaluates GeM's July 24, 2026, response letter to the Division of Waste Management (DWM) and demonstrates that GeM's claim of unrestricted safety directly contradicts its own referenced data.

II. Executive Summary of Audit Findings (Updated with SWPPP Refinement)

While GeM asserts the exported Parcel A soils meet risk-based screening levels for unrestricted residential/agricultural use, the underlying federal documentation proves otherwise:

- **Admitted Risk Exceedances:** The June 2026 Additional Human Health Risk Screening reports a residential subsurface cancer risk (ELCR) of 3.85×10^{-4} and a noncancer hazard index of 1.52—both exceeding safe regulatory thresholds.
 - **Mathematical Errors:** GeM's screening acknowledges an error in the May 2025 risk update, stating an incorrect gamma shielding factor (0.2 instead of 0.4) was used, underestimating the uranium-238 radiation dose to residents by 1.5 to 2 times.
 - **Invalid Assumptions:** GeM substituted empirical laboratory testing with narrative assumptions, claiming chromium is in the less-toxic trivalent form solely because cooling towers were located upwind.
 - **Breach of Institutional Controls:** The DOE Leasing Data Package explicitly restricts the property to Industrial Use only and prohibits groundwater use. GeM bypassed these federal controls by moving the soil to the off-site Warford Property.
 - **Updated Soil Transfer Volume:** Recent documentation reveals a major escalation in scope during an active state investigation. The revised July 15, 2026, SWPPP filed by Dumey Contracting officially projects **115,000 cubic yards** of soil movement across 30 disturbed acres. GeM's own July 24 Cut/Fill Analysis documents a **net export of 144,400.2 cubic yards**. **This comparison leaves approximately 29,400 cubic yards of soil unaccounted for between the two filings, indicating either unreported off-site placement or incomplete regulatory disclosure.** The SWPPP's drainage map depicts **20 acres of disturbed area sheet-flowing northeast toward Bayou Creek**, with only intermittent rock check dams and silt fence in place. **The July 15 SWPPP is the most recent state-filed permit document and therefore represents the Cabinet's official volumetric disclosure for the Warford site.**
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III. Imminent Threat vs. Deferred Federal Oversight

EPA Region 4 recently stated that CERCLA protectiveness is evaluated during Five-Year Reviews, with the next review scheduled for 2028. EPA also clarified that updated toxicity values—including those for TCE—are being incorporated into the ongoing Remedial Investigation/Feasibility Study (RI/FS) and will be carried forward into future CERCLA decision documents.

However, this toxicity-update process applies only to new CERCLA documents and does not resolve protectiveness threats arising from current physical site conditions. The 2023 FYR explicitly states that protectiveness at PGDP presently relies heavily on passive institutional controls, such as warning signs, fencing, and riprap placed over acidic leachate seeps.

Waiting until 2028 is structurally inadequate when uncontained stormwater from the exported soil actively threatens to destabilize the very riprap and passive controls cited as protective in the 2023 FYR. The continued expansion of the soil transfer—now totaling up to 144,400.2 cubic yards as documented in GeM's July 24 Cut/Fill Analysis—significantly amplifies these hydrological risks, as the SWPPP explicitly maps 30 acres of uncontained sheet flow interacting with these precise watershed pathways.

Federal awareness of this investigation must translate into immediate CERCLA enforcement, not bureaucratic deferral.

IV. Request for Formal Agency Determination

If the reviewing agencies cannot legally or mathematically justify the self-admitted exceedances and breaches of institutional controls detailed above, the Cabinet must immediately escalate this matter. I respectfully request the issuance of a formal Notice of Violation (NOV), an immediate halt to all off-site soil placement, and the execution of deep-core forensic sampling at the Warford Property.

I request that DWM and EPA formally clarify their regulatory positions on the record:

1. Does the Commonwealth consider an off-site soil application resulting in a documented residential ELCR of 3.85×10^{-4} and a hazard index of 1.52 compliant with unrestricted residential safety standards?

- 2. Does EPA Region 4 concur that removing soils from the federal footprint and placing them on private land maintains the industrial-only institutional controls required by CERCLA and the Federal Facility Agreement?**

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