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Information Quality Guidelines Staff
United States Environmental Protection Agency
Mail Code 28221T
1200 Pennsylvania Ave., N.W.
Washington, DC 20460

Re: Request for Correction of Information under the Data Quality Act Regarding EPA (Region VII) Dissemination of Information with respect to the Herculaneum Lead Smelter Site, Herculaneum, Missouri

Dear Madam or Sir:

This Request for Correction ("RFC") of information is filed under the Data Quality Act, (Treasury and General Government Appropriation Act for Fiscal Year 2001, Pub. L. No. 106-554, § 515 Appendix C, 114 Stat. 2763A-153) ("DQA"), and EPA's *Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity, of Information Disseminated by the Environmental Protection Agency*, EPA/260R-02-008, October 2002 ("EPA Information Quality Guidelines"), on behalf of the Doe Run Company, which produces lead and lead products at its Herculaneum, Missouri facility.

EXECUTIVE SUMMARY

EPA has and continues to disseminate soil recontamination data for Doe Run's Herculaneum Lead Smelter ("HLS") site that fail to comply with the DQA and EPA Information Quality Guidelines. In 2001, Doe Run began remediating the top 12 inches of soil from properties surrounding HLS and implementing control strategies to reduce overall emissions from the site. In 2002, EPA began monitoring the remediated soil for potential lead recontamination from ongoing operations at HLS using one-inch samples as specified in the operative quality assurance project plan ("QAPP"). According to EPA's *Technical Report for Focus Group Recommendations, Herculaneum, MO* ("Focus Group Report") dated Oct. 6, 2003, the results reported in 2002 using the specified one-inch sample depths found "no evidence that the replaced soil is becoming contaminated during the first year since said replacement." (**Tab**

1, p. 11). After this finding of no lead recontamination, EPA staff decided that "[s]urface scraping samples are a more sensitive indicator of contamination of the replaced soil by lead dust and were instituted by the EPA in Herculaneum in 2003." (*Id.*)

However, in adopting this more "sensitive" surface scraping approach, EPA failed to comply with the DQA and its own information quality guidelines by implementing the change without following EPA-mandated data quality procedures or vetting the technical implications of the change. Specifically, EPA has failed to: (1) follow the correct QAPP, (2) implement the QAPP as written, and (3) amend the QAPP in a manner consistent with EPA data quality requirements. These failures call into serious question the quality of the lead recontamination data that EPA (specifically Region VII) disseminates to the public and uses for making regulatory decisions.

Doe Run did not learn of the change in sampling procedure until 2004, and objected immediately when the information came to light. Since 2004, Doe Run has been in contact with EPA staff in Region VII and at Headquarters in an attempt to resolve this problem, but EPA has failed to address the data quality concerns. This RFC asks that EPA bring its HLS lead recontamination study into compliance with the DQA and cease disseminating data affected by these data quality concerns.

DISCUSSION

I. CONTACT INFORMATION

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II. DESCRIPTION OF NON-COMPLIANT INFORMATION

EPA has repeatedly disseminated soil recontamination data for HLS – and warnings to the public derived from these data[1] – which are based on its invalidly changed soil sampling protocol, which EPA switched in 2003 from a one-inch sample to a one-quarter or one-eighth-inch surface scraping. Specifically – in contrast to the data that EPA gathered in 2002, using a one-inch soil sample, which showed "there does not appear to be any evidence that the replaced soil is becoming contaminated during the first year since soil replacement" (Focus Group Report, **Tab 1**, p. 11) – at least seven documents disseminated through EPA Region VII's website or through EPA's Herculaneum Lead Smelter Community Advisory Group ("CAG") now report increasing lead recontamination at Herculaneum. These documents cite data and information concerning lead recontamination in the area surrounding HLS that EPA collected in a manner contrary to the *EPA Quality Manual for Environmental Programs*, EPA Order 5360 A1, May 5, 2000 ("EPA Quality Manual," which is available at http://www.epa.gov/QUALITY/qs-docs/5360.pdf). The seven documents include the following:

1. *Lead Soil Trend Analysis Through May, 2006 - Evaluation by Individual Quadrant, Herculaneum Lead Smelter Site, Herculaneum, Missouri* (2006, available at http://www.epa.gov/region7/cleanup/superfund/herculaneum_pbtrend_thru_may2006.pdf, last visited October 19, 2006; *see* **Tab 2**). The report states the "trend analysis identified 14 out of 17 properties where at least one quadrant showed a statistically significant increasing trend [in recontamination]."[2]

2. *EPA Fact Sheet: Herculaneum Smelter Site, Herculaneum, Missouri* (September 2006; distributed at the September 19, 2006 Meeting of the Herculaneum Lead Smelter CAG; *see* **Tab 3**). This fact sheet states:

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[1] Doe Run also is concerned that EPA is disseminating potentially questionable lead recontamination data through means other than EPA publications and websites. There have been numerous press reports quoting and citing EPA staff on the issue of lead recontamination at Herculaneum. A recent example is a July 21, 2006 article in the St. Louis Post-Dispatch. The article, titled *Neighbors Hope Doe Run Revitalizes Land*, by Benjamin Poston, reports: "Bruce Morrison, the Herculaneum lead cleanup project manager for the EPA, said his agency continued to monitor yard soils for recontamination within four-fifths of a mile from the smelter, a process that began in 2002. The U.S. EPA recently has detected eight samples within one-half mile of the smelter that contained lead contamination exceeding the acceptable federal level of 400 parts per million." (**Tab 4**).

[2] Note that this report includes data from early 2002 (sampling round 6) through May 2006 (sampling round 23). EPA's Technical Report for Focus Group Recommendations makes it clear that sampling was conducted using a one-inch sample depth in 2002 and then switched to a surface scraping in 2003, indicating that the Trends Report includes data collected under two types of protocols, an issue that raises additional data quality questions.

> Fact #3: Recontamination of Herculaneum, after yard clean up, house interior clean up, road clean up and stated efforts to control emissions from the Doe Run Smelter, has been and continues to occur. This fact is based on the ongoing data collection conducted by the EPA.

3. *EPA Fact Sheet: Quarterly Update for Herculaneum Lead Smelter Site, Herculaneum, Missouri* (February 2006, available at http://www.epa.gov/Region7/news_events/factsheets/fs_quarterly_update_herculaneum_lead_smelter_herculaneum_mo0206.htm, last visited October 19, 2006; *see* **Tab 5**). This fact sheet states:

> EPA monitors for lead recontamination in surface soils every six months. The data indicate that lead levels are trending upward in areas within eight-tenths of a mile from the smelter. Data and statistics collected by EPA are available at: www.epa.gov/region7/cleanup/superfund/major_superfund_site_reports.html.
>
> EPA has analyzed soil samples collected through the third quarter of 2005. These samples indicate: 45 of 62 quadrants, or 73 percent, show an increasing trend in soil lead concentrations; 15 of 16 residences have at least 1 quadrant with an increasing trend of lead contamination.

4. Letter dated December 29, 2005 from the Missouri Department of Natural Resources to The Doe Run Company and copying the Herculaneum CAG, the City of Herculaneum, EPA, Missouri Attorney General's Office, and the Missouri Department of Health and Senior Services (*see* **Tab 6**). The letter cites EPA's lead recontamination data and states:

> In January 2005, the DNR completed its report entitled "Analysis of Lead Recontamination and Deposition in Soils Adjacent to The Doe Run Company's Herculaneum Smelter, Herculaneum, Missouri." This report documented the DNR's statistical analysis of lead re-deposition data from periodic soil sampling and analysis conducted in Herculaneum by the EPA. Since the report was completed, the DNR has periodically updated and refined its analysis of the EPA's re-deposition data upon receipt of new data. These statistical analyses of the re-deposition data indicate significant residential soil recontamination is occurring within 0.75 mile of Doe Run's Herculaneum smelter. Our analysis indicate residential soils within the Herculaneum VPPP area and areas beyond will be recontaminated to unacceptable levels within relatively short periods of time. Soil recontamination at these rates is an unacceptable and unsustainable long-term outcome for the Herculaneum community.

5. Letter dated December 23, 2005 from the Missouri Department of Natural Resources to The Doe Run Company, and copying the Herculaneum CAG, the City of Herculaneum, EPA, Missouri Attorney General's Office, and the Missouri

Department of Health and Senior Services (*see* **Tab 7**). The letter cites EPA's lead recontamination data and concludes:

> Based on our soil re-deposition data analyses, the DNR does not agree that general re-occupancy of residences in the Herculaneum VPPP area is protective of human health in the long-term without continued response actions. Under current conditions, on average, residential yards within one-quarter mile of the smelter would require additional clean-up in a little over two years, and would required continued remediation every 5 to 7 years, based on an action level of 400 mg/kg lead in soil. The frequency of clean up needed to continue the use of this area as residential is unsustainable and unacceptable to the DNR.

6. *EPA Fact Sheet: Herculaneum Lead Smelter Site - Herculaneum, Missouri* (November 2005, available at http://www.epa.gov/Region7/news_events/factsheets/fs_herculaneum_lead_smelter_herculaneum_mo1105.htm, last visited October 19, 2006; *see* **Tab 8**). This fact sheet states:

> Monitoring for lead recontamination in surface soils is being conducted by EPA every three months. The data indicate that lead levels are trending upward in areas within eight-tenths of a mile from the smelter. Data and statistics collected by EPA are available on EPA website: http://www.epa.gov/region7/cleanup/superfund/major_superfund_site_reports.html.

7. *EPA Fact Sheet: Administrative Record & Engineering Evaluation/Cost Analysis Report Released for Public Comment, Herculaneum Lead Smelter Site, Herculaneum, Missouri* (March 2005, available at http://www.epa.gov/Region7/news_events/factsheets/fs_admrec_eng_analy_pub_herculaneum_mo0305.htm, last visited October 19, 2006; *see* **Tab 9**). This fact sheet states:

> Monitoring for redeposition of lead in surface soils is being conducted by EPA every three months. The data is indicating that lead levels are trending upward in areas within a half mile of the smelter. EPA is conducting a study to determine the source(s) of the lead and will continue the quarterly monitoring program. Completion of the study is anticipated this summer.

Other documents relevant to this RFC are attached hereto:

- *Quality Assurance Project Plan for a Site Characterization at the Herculaneum Lead Smelter, Herculaneum, Missouri*, prepared by US EPA Region 7 Superfund

Technical Assistance and Response Team, September 10, 2001. ("2001 QAPP"; *see* **Tab 10**).[3]

- *Addendum to the Quality Assurance Project Plan for Site Characterization for the Herculaneum Lead Smelter Superfund Site,* August 30, 2006. (*See* **Tab 11**).

- *Quality Assurance Project Plan for Lead Deposition at Herculaneum, Missouri*, August, 2002. ("2002 QAPP"; *see* **Tab 12**).

III. DISCUSSION OF THE INFORMATION'S NONCOMPLIANCE WITH THE DQA AND EPA GUIDELINES

The seven numbered documents listed above do not comply with the DQA and EPA Information Quality Guidelines because they rely on lead recontamination data collected in violation of the requirements of the EPA Quality Manual. EPA Order 5360.1 A2 (May 5, 2005, available at http:// www.epa.gov/quality/qs-docs/5360-1.pdf) and Section 4 of the EPA Information Quality Guidelines state that "Agency policy has required participation in an Agency-wide Quality System by all EPA organizations (office, region, national center or laboratory) supporting environmental programs" and mandate adherence to the EPA Quality Manual.

In its actions relating to soil screening at HLS, EPA has and continues to act contrary to the EPA Quality Manual in at least three significant ways. These violations call into serious question the quality of the data used to support the assertions made in the seven HLS-related documents disseminated to the public. Specifically, the violations include the following:

1. EPA has ignored or abandoned a more recent and specific QAPP dated August 2002 in favor of an older QAPP dated September 2001 without justification and without adhering to the requirements of the EPA Quality Manual;

2. EPA has failed to properly implement either the 2001 or 2002 QAPPs by disregarding the specifications and procedures provided in the QAPPs; and

3. EPA's *ex post facto* amendment of the 2001 QAPP is in direct violation of QAPP revision procedures specified in the EPA Quality Manual.

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[3] Making data quality concerns even worse, at least two, substantively different, versions of the 2001 QAPP appear to be in circulation. The official version, which is part of EPA's *Community Soil Cleanup Plan for the Doe Run Company Herculaneum Smelter, Herculaneum, Missouri* (January 4, 2002), bears signatures dated September 11, 2001 and September 12, 2001. (**Tab 10**). Recently, Region 7 made available a divergent version of the 2001 QAPP, which bears signatures dated September 11, 2001 and October 1, 2001. (**Tab 13**). It also contains additional provisions that do not appear in the official version circulated as part of the 2002 Community Soil Cleanup Plan. This may be a separate violation of the EPA Quality Manual's requirement that all implementing personnel be provided with a copy of the QAPP and be made to understand the requirements. (EPA Quality Manual § 5.2.2).

A. EPA ignored or abandoned the 2002 QAPP without justification

EPA has contravened Section 5.2.2 of the EPA Quality Manual, which requires that "[a]ll QAPPs shall be implemented as approved by EPA," by failing to implement the 2002 QAPP when conducting the HLS lead recontamination study. Instead, EPA staff assert they are following the prior and less specific 2001 QAPP.

According to EPA's October 6, 2003 Focus Group Report, the disregard or abandonment of the 2002 QAPP occurred because the 2002 lead recontamination study results showed that "[b]ased on a review of the post-intervention soil monitoring protocol, there does not appear to be any evidence that the replaced soil is becoming contaminated during the first year since soil replacement." This finding of no lead recontamination prompted EPA staff unilaterally to change the "post-intervention soil monitoring protocol," switching from a one-inch sample depth to one-quarter or one-eighth-inch deep surface scrapings; as the Focus Group Report memorialized, "[s]urface scraping samples are a more sensitive indicator of contamination of the replaced soil by lead dust and were instituted by the EPA in Herculaneum in 2003." (Focus Group Report, **Tab 1**, p. 11).

1. Description of Violation

EPA developed two QAPPs for use at HLS, a 2001 QAPP for site characterization and a 2002 QAPP for assessing lead recontamination. The 2001 QAPP states as its objective, "[t]his QAPP was prepared to address *site characterization* to determine the extent of soil contamination caused by operations at the Herculaneum Lead Smelter (HLS) site in Herculaneum, Missouri." (2001 QAPP § 1.2, emphasis added). The soil characterization work conducted under the 2001 QAPP resulted in the remediation and replacement of the top twelve inches of soil from residential yards near HLS.

In contrast, the 2002 QAPP includes the following specific objectives: "(1) [to] determine if properties that have been cleaned under the soil removal program will be *recontaminated* by lead depositing from air to the extent (400 ppm or greater in top 1 in.) that they must be recleaned; (2) determine the rate of *recontamination* of soils by atmospheric deposition." (2002 QAPP § 2, emphasis added).

Despite these clearly articulated and differing objectives, EPA staff now contend the 2002 QAPP was meant only for "experimental" purposes and does not apply to the ongoing lead recontamination study. Instead, EPA staff assert that the 2001 QAPP applies and that they have been using the QAPP for measuring lead recontamination at HLS. This position cannot be squared with the EPA Quality Manual because there is no provision in the 2002 QAPP that states the QAPP is experimental, nor does the 2001 QAPP say that it applies to assessing lead *recontamination*. Moreover, EPA has taken no formal action to withdraw the 2002 QAPP or modify the 2001 QAPP to apply it to lead recontamination. Without such action, the 2002 QAPP remains controlling as to determining soil recontamination, and EPA's disregard or abandonment

of the 2002 QAPP in favor of the 2001 QAPP is improper under the EPA Quality Manual's requirement for EPA to implement the QAPP as written (EPA Quality Manual § 5.2.2).

2. Proposed Corrective Action and Effect

Doe Run urges that EPA be directed to conduct the ongoing lead recontamination study under the terms of the 2002 QAPP. Doe Run questions whether there is a material difference in the key language of the 2001 and 2002 QAPPs, but EPA staff contend that the two QAPPs define soil sampling depths differently. The 2001 QAPP specifies that soil samples should be collected from the "upper 1 inch of soil" (2001 QAPP § 2.1), whereas the 2002 QAPP uses the term "top 1 inch" (2002 QAPP § 2). Doe Run believes the two terms are synonymous and mean the sample should be taken from the entire top one inch of surface soil. However, EPA staff distinguish "upper 1 inch" from "top 1 inch" by saying "upper 1 inch" allows the collection of soil samples using any part of the soil within the top inch and not necessarily the entire top one inch of soil (or rough equivalent, consistent with practice in the field). The effect of sampling anything less than the full one inch of soil is to make the test for lead recontamination more sensitive than intended by the QAPPs, according to the Focus Group Report. So long as EPA continues to maintain there is a distinction between the two terms, Doe Run requests that EPA be directed to follow the 2002 QAPP as required by the EPA Quality Manual, since the 2002 QAPP explicitly states that it is to be used to determine soil "recontamination."

B. EPA failed to properly implement either the 2001 or 2002 QAPPs

Further, EPA has violated another provision of Section 5.2.2 of the EPA Quality Manual, which requires that "[a]ll QAPPs shall be implemented as approved by EPA," by failing to implement soil sampling procedures as stated in the 2001 and 2002 QAPPs when conducting the HLS lead recontamination study.

1. Description of Violation

The 2001 QAPP specifies that the "composite sample will be collected from the upper 1 inch of soil." (2001 QAPP § 2.1). Similarly, the 2002 QAPP states it is intended to "[d]etermine the rate of recontamination of soils by atmospheric deposition. That is, how much lead is being deposited per kg of soil (top 1 in.) per unit time." (2002 QAPP § 2). Plainly, at the outset, EPA staff interpreted whichever QAPP they thought they were implementing to mean they needed to use a one-inch deep sample, since the "post-intervention soil protocol" at that depth failed to produce evidence of soil recontamination and had to be changed to a "surface scraping" in 2003. (Focus Group Report, **Tab 1**, p. 11). Equally clearly, EPA is now sampling only the top one-quarter to one-eighth-inch of soil or a surface scraping – contrary to the 2001 and 2002 QAPPs as written and originally implemented. Yet, despite this substantial change in practice, neither the 2001 nor 2002 QAPP was amended in a manner consistent with the EPA Quality Manual.

2. Proposed Corrective Action and Effect

Doe Run proposes that EPA should adhere to its stated QAPP sampling depth of one inch,[4] until and unless there has been shown to be an adequate and demonstrated basis for the change and full adherence to DQA requirements. EPA should reconsider any regulatory decisions it has made based on the compromised data. In addition, EPA should issue notification to the public and cease disseminating data collected under the soil scraping sampling method until and unless a scientific review can be undertaken of which approach is the more valid for determining recontamination. Doe Run should be included as a stakeholder in any process that might lead to a change in EPA's established standards under the 2001 and 2002 QAPPs.

C. EPA's *ex post facto* amendment of the 2001 QAPP violates EPA Guidelines

EPA further violated Quality Manual procedures for amending QAPPs (EPA Quality Manual § 5.2.2) when it amended the 2001 QAPP long after the fact to "clarify" soil sampling depths.

1. Description of Violation

When EPA decided to disregard the one inch sampling standard established by the 2001 and 2002 QAPPs, it failed to consult or inform Doe Run, a major stakeholder. It was not until some time later, in March 2004, that Doe Run Company became aware of EPA's change in its established sampling standards; and Doe Run immediately objected. Doe Run has continued to object to this unilateral change, from 2004 to the present. After Doe Run brought its objections to the attention of OSWER Headquarters staff in June 2006, EPA issued an "Addendum to the Quality Assurance Project Plan on August 30, 2006," some three years after the actual change EPA made in its sampling approach. Notably, the "Addendum" was made to the 2001 QAPP, which by its terms address site characterization, rather than to the more recent and more specific

[4] In discussion with EPA staff, Doe Run cited many written examples in which EPA specified use of a one-inch sampling depth including: (1) Work Plan for Viburnum Trend Haul Roads Site (July 11, 2005), "At each aliquot location, a small area will be excavated down to approximately 1 inch into the topsoil."; (2) Work Plan for Interim Action, St. Francois County Mine Tailings Sites (May 2004), "At each aliquot location, a small area will be excavated with a clean trowel or trier down to approximately 1 inch into the topsoil."; (3) Work Plan for Removal Preliminary Assessment and Site Inspection (Viburnum Site) (EPA-approved draft dated November 10, 2005), "At each aliquot location, a small area will be excavated down to approximately 1 inch into the topsoil."; and (4) Omaha - Region VII contractor Black & Veatch, Field Sampling Plan (October 1998), "Each aliquot will be collected from the top one-inch of soil away from the influences of the house's drip zone." In response, EPA's Headquarters staff surprisingly stated that they believe these specifications and others may be widely disregarded as well. This would suggest additional DQA violations with respect to numerous other sites within Region VII (and perhaps other regions as well).

2002 QAPP which by its terms EPA explicitly adopted to examine the question of recontamination. In any event, the August 2006 amendment of the 2001 QAPP, long after Region 7 switched from a one-inch deep sample to a "surface scraping," is equally in conflict with requirements set forth in the Quality Manual with respect to both the 2001 and 2002 QAPPs.

EPA did not comply with Quality Manual requirements for revising QAPPs to make this amendment. Specifically, with regard to changes to QAPPs, the Quality Manual states:

> Because of the complex and diverse nature of environmental data operations, changes to original plans are often needed. The EPA Project Manager, with the assistance of the QA Manager as appropriate, must determine the impact of such changes on the technical and quality objectives of the project. When a substantive change is warranted, the originator of the QAPP shall modify the QAPP to document the change and submit the revision for approval by the same authorities that performed the original review. Only after the revision has been approved and received (at least verbally with written follow-up) by project personnel, shall the change be implemented. [EPA Quality Manual § 5.2.2.]

Section 5.2.2. of the Quality Manual requires that amendments be approved *before* the change takes place. In this case, EPA sought to memorialize the change *ex post facto* in 2006, long after having made the switch in sampling procedure in 2003. Moreover, the EPA Project Manager has an affirmative duty under EPA Quality Manual § 5.2.2 to review the QAPP annually and propose changes as necessary, yet did not propose any changes for more than three years. In addition, EPA provided no analysis of the change's impact on the "technical and quality objectives of the project."

The EPA Quality Manual states that quality planning "is an absolutely essential component of project management and the QAPP provides the mechanism for documenting the results of the planning process. This planning must include the 'stakeholders' (*i.e.*, the data users, data producers, decision makers, etc.) to ensure that all needs are defined adequately at the outset and that the planning for quality addresses the specific needs defined." (EPA Quality Manual § 5.1). As discussed above, EPA did not consult with Doe Run, a major stakeholder.

2. Proposed Corrective Action and Effect

Doe Run urges EPA to invalidate the 2006 Addendum to the 2001 QAPP and adhere to its established QAPP sampling depth of one inch, until and unless there has been shown to be an adequate and demonstrated basis for the change favored by EPA staff. EPA should reconsider any regulatory decisions it has made based on the compromised data. In addition, EPA should issue notification to the public and cease disseminating data collected under the soil scraping sampling method until and unless a scientific review can be undertaken of which approach is the more valid for determining recontamination. Doe Run should be included as a stakeholder in any process that might lead to change of EPA's established QAPP standards.

Adherence to EPA's promulgated procedures for establishing, implementing and amending a QAPP will maintain the credibility of EPA's sampling programs and results. It will also assist the public, elected officials and Doe Run in assessing and acting upon the results of sampling that is conducted in a manner consistent with good scientific practice, transparency and objectivity so as to maximize its usefulness for protecting public health. The blatant disregard of EPA's data quality requirements and established procedures that has occurred with respect to the HLS site should not be tolerated by the Agency and must be corrected promptly, as required by the DQA.

Respectfully submitted,

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Enclosures