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Via E-Mail

Information Quality Guidelines Staff
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Washington, DC 20460

Re: Information Quality Act Request for Correction regarding EPA's 2008 Screening-Level Ecological Risk Assessment for the Newark Bay Study Area

This request for the correction of information is submitted on behalf of Troy Chemical Corporation, Inc. (Troy Chemical) under the Information Quality Act[1] and the implementing guidelines issued, respectively, by the U.S. Office of Management and Budget (OMB)[2] and the U.S. Environmental Protection Agency (EPA).[3]

EPA's Guidelines implementing the Information Quality Act expressly contemplate the correction of information disseminated by EPA that falls short of the "basic standard of quality, including objectivity, utility, and integrity," established either by EPA's own Guidelines or those issued by OMB. As described in more detail following, Troy Chemical seeks corrections to a number of errors and omissions in EPA's 2008 Screening-Level Ecological Risk Assessment (SLERA) for the Newark Bay Study Area[4] concerning the location of sediment samples in the Bay, the use of sediment sampling

[1] Section 515(a) of the Treasury and General Government Appropriations Act for Fiscal Year 2001, P.L. 106-554; 44 U.S.C. § 3516 (notes).

[2] OMB Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity of Information Disseminated by Federal Agencies (hereinafter "OMB Guidelines"), 67 Fed. Reg. 8452 (Feb. 22, 2002).

[3] 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) (hereinafter "EPA Information Quality Guidelines").

[4] Final Screening-Level Ecological Risk Assessment Report for Newark Bay Study Area, Submitted to U.S. Environmental Protection Agency Region 2 and U.S. Army Corps of Engineers Kansas City District. December 15, 2008, available at: http://www.ournewarkbay.org/projectsites/NewarkBay_public/index.cfm?fuseaction=home.

data to calculate hazard quotients for potential ecological health effects, the application of sediment protective concentration levels for wildlife, and EPA's characterization of mercury loadings in the Bay.

Gradient Corporation (Gradient) has performed the attached analysis of EPA's 2008 SLERA for the Newark Bay Study Area and has found a number of errors, inconsistencies, omissions, and invalid conclusions with the report, which are summarized below. Please refer to Gradient's analysis in Attachment 1 for details, including tables and figures that further support its findings. A summary of Gradient's findings follow.

An inappropriate coordinate system was used to analyze contaminant distribution and sources. The SLERA uses an inappropriate coordinate system, which has led to assignment of sampling locations to incorrect "Reaches" within Newark Bay and generation of inaccurate concentration-distance plots. The coordinate system used in the SLERA measures distance along an arbitrary north-south axis rather than along the axis of flow within the Bay (refer to Figure 1 in Attachment 1). This difference in axis orientation has a significant effect on data interpretation. For example, as illustrated in Figure 1, samples collected from Port Newark Channel and portions of the Northern Reach appear at the same location in the concentration-distance plots presented in EPA's SLERA (see Figures 8-15 in EPA's 2008 SLERA).

Troy Chemical requests that the coordinate system misalignment be corrected in the SLERA.

A key Northern Reach data point (NB901) was incorrectly included in the Middle Reach. Due to the misaligned coordinate system, a key sediment sample in Newark Bay (i.e., NB901), located in the Northern Reach, was incorrectly used to assess ecological risks for the Middle Reach (see Figure 2 in Attachment 1). Sample location NB901 is important because it contained high sediment concentrations of several compounds, including the highest surficial mercury concentration recorded in the Northern Reach. This sample also contained high concentrations of arsenic, copper, total DDx (DDT, DDE, DDD), and 2,3,7,8-TCDD.

Troy Chemical requests that the ecological risk calculations be corrected in the SLERA using data from sample NB901 to characterize Northern Reach sediments rather than Middle Reach sediments.

There are other deficiencies in the SLERA. The SLERA calculates hazard quotients (HQs) for each chemical by taking the maximum sediment concentration detected in the top 6 inches and dividing it by a sediment screening benchmark that is protective of direct toxicity to benthic invertebrates and wildlife (referred to as a protective concentration level or PCL in EPA's 2008 SLERA report). An overview of two deficiencies in the SLERA is provided below; please refer to Gradient's analysis in Attachment 1 for details.

- The maximum 2,3,7,8-TCDD concentration in the Southern Reach was detected at sample location NB01SED019. However, the 2,3,7,8-TCDD concentration measured at this location does not appear to have been used in the HQ calculations, although concentrations for many other analytes measured at this location were used in the analysis.

- A key data point used in EPA's calculations (i.e., sample 105 in the SLERA) is located within the transitional slope region of Port Newark Channel. Because this sample was collected in 1993 in an area that may have since been dredged[5], it is not representative of current conditions and should not have been used in the ecological screening calculations.

Troy Chemical requests that the concentration of 2,3,7,8-TCDD in sample location NB01SED019 in the Southern Reach be used in the SLERA to represent the maximum detected concentration for this analyte, and that the corresponding HQ value for 2,3,7,8-TCDD be recalculated in the SLERA. Troy Chemical also requests that the SLERA be corrected to exclude the use of any data from sample 105 and that any HQ values based on data collected from this sample be recalculated in the SLERA.

Table 1 in Attachment 1 presents revised maximum detected concentrations for selected compounds and their associated HQ values when these two deficiencies, as well as the mistake related to NB901 noted above, are corrected.

The wildlife PCLs used in the Newark Bay SLERA are very different from the Passaic River SLERA. The sediment bioaccumulation PCL values used in EPA's 2008 Newark Bay SLERA differ considerably from those used in the Passaic River SLERA prepared by Malcolm Pirnie in 2007[6], although the receptors and overall approach used for both PCL calculations are identical. The two documents appear to use different bioaccumulation sediment accumulation factors (BSAFs), yet the reason for using different values for this parameter is not provided. The use of different BSAFs results in vastly different PCL values and calculated HQ values in the two reports for the identified compounds of potential environmental concern (COPEC).

Overall, these differences in the wildlife PCLs have the effect of overestimating the ecological risk of metals and PAHs and underestimating the ecological risk of dioxins in the Bay compared to the 2007 SLERA for the Passaic River. Table 2 in Attachment 1 presents a comparison of the sediment PCL values used in the Newark Bay and Passaic River SLERAs, and the impact of these differences on the calculated HQs.

Troy Chemical requests that EPA review the BSAF value used in the SLERA for Newark Bay and that the Agency recalculate the HQ values in the SLERA if it determines the incorrect BSAF value was used.

Consideration of the Phase II sediment data indicates that the conclusions reached by the prior Newark Bay Mercury Mass Balance model are not valid. Mass balance modeling performed by Malcolm Pirnie in 2006 and mentioned in EPA's 2008 Newark Bay SLERA did not appropriately characterize mercury loadings from sources such as Arthur Kill and Kill van Kull, the

[5] Newark Bay Study Area, Remedial Investigation Work Plan – Sediment Sampling and Source Identification Program (Phase I), Newark Bay, New Jersey. Tierra Solutions, Inc, June 2004.

[6] Source Control Early Action Focused Feasibility Study, Lower Passaic River Restoration Project. Malcolm Pirnie, Inc, June 2007.

largest sources of sediment loading to the Bay. In 2006, Malcolm Pirnie developed a mass balance for mercury, 2,3,7,8-TCDD, and total TCDD.[7] For its analysis, Malcolm Pirnie modeled Newark Bay as a well-mixed basin with an annual sediment deposition equal to the sum of the sediment loads from the inflowing rivers, combined sewer overflow, waste water treatment plants, and atmospheric deposition. The calculated sediment loads and average mercury concentrations of each river were used to estimate the total mercury input to Newark Bay. By comparing the mercury loading rates, the analysis concluded that 158 kg/year of mercury could not be accounted for and must originate from another source.

Gradient reviewed the mass balance and updated the analysis incorporating the Phase II sediment quality data for Newark Bay (see Tables 3 and 4 in Attachment 1). The conclusion from the prior mass balance that 158 kg/year could not be accounted for using the modeled sources is not valid. Using average surficial sediment mercury concentrations for each water body (Table 3), Gradient's analysis shows that:

- The input of mercury to the Bay from the four inputs (Passaic, Hackensack, Kill van Kull, and Arthur Kill) accounts for all mercury deposition in Newark Bay; and

- Kill van Kull is a significant source of mercury, accounting for two-thirds of the total mercury mass loading to the Bay.

Troy Chemical requests that the mercury mass balance in the 2006 Malcolm Pirnie analysis be updated based on the Phase II sediment quality data for Newark Bay, and that the SLERA be corrected to indicate that mercury inputs from the Passaic River, Hackensack River, Kill van Kull, and Arthur Kill fully account for all mercury deposited in Newark Bay, and that there are no other significant sources of mercury to the Bay.

EPA's 2008 SLERA for the Newark Bay Study Area does not meet the Standards for Information Quality

Based on the deficiencies outlined above, EPA's 2008 SLERA is not accurate and its utility is comprised, therefore, it does not meet the standards for information quality. The OMB Data Quality Guidelines define quality as an encompassing term comprising utility, objectivity, and integrity.[8] Of these four statutory terms, EPA's definition of objectivity and utility are most relevant to EPA's 2008 SLERA report. EPA's Data Quality Guidelines state that objectivity refers to information that "…as a matter of substance, is accurate, reliable, and unbiased." EPA's guidelines define utility as referring to "the usefulness of the information to the intended users". EPA Guidelines at 15. As discussed above and further detailed in Gradient's analysis, EPA's 2008 SLERA for the Newark Bay Study Area contains a number of errors, inconsistencies, omissions, and invalid conclusions. These inaccuracies and deficiencies limit the usefulness and objectivity of the report, such that in its current state the report is

[7] Lower Passaic River Restoration Project: Draft Geochemical Evaluation (Step 2). Prepared for US EPA, Region II and US Army Corps of Engineers. Malcolm Pirnie, Inc, February 2006.

[8] OMB Guidelines, 67 Fed. Reg. at 8459.

not adequate to support proceeding to the baseline ecological risk assessment (BERA), which is the next step in the remediation process for Newark Bay.

Conclusions and Recommendations

The attached report identifies several significant inaccuracies and deficiencies in EPA's 2008 SLERA for the Newark Bay Study Area that require correction. Troy Chemical is a recipient of a General Notice Letter from EPA for the Newark Bay Study Area, and Troy Chemical therefore has a strong interest in ensuring that the data used for the Bay Study are accurate and objective. The errors noted here can impact the BERA and potentially the ultimate remedy for the Newark Bay Study Area. Troy Chemical requests that EPA's 2008 SLERA report be corrected to address the errors noted.

Thank you for your prompt attention to this request.

Respectfully submitted,

Cynthia Taub,
on behalf of Troy Chemical