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To: Walter Mugdan, Director
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From: Jennifer LaPoma, Remedial Project Manager Jennifer LaPoma 6/27/16

cc: Michael Sivak, ERRD
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Date: June 27, 2016

Re: Diamond Alkali Site – Lower Passaic River Study Area Administrative Settlement Agreement and Order on Consent for Remedial Investigation and Feasibility Study, US. EPA Region 2 CERCLA Docket No. 02-2007-2009 - Exposure Depth Dispute Resolution

This memorandum has been prepared as an addendum to the U.S. Environmental Protection Agency's ("EPA") June 7, 2016 Region's Staff Position of Statement regarding the benthic exposure depth dispute, to address the Cooperating Parties Group's ("CPG") letter of June 23, 2016, which the CPG submitted in response to the Region's Staff Statement of Position. EPA Staff has reviewed the CPG's June 23, 2016 letter, which was provided as an unsolicited response to the above and has concluded that no new substantive information relevant to the dispute has been provided. Nevertheless, EPA Staff is providing the following responses.

The CPG's reference to a 1993 draft scope of work for Operable Unit 2 of Diamond Alkali which identifies 2 centimeters as the biologically active zone was presented in CPG's November 2015 Statement of Position. EPA has addressed this point in the Region's Staff Statement of Position, where it was discussed that surface sampling of the Lower Passaic River Study Area ("LPRSA") has been performed over a number of years and phases, with the data use objective that a composited sample from the top 15 centimeters is representative of surface sediment concentrations across the entire sample depth, and accordingly over 500 samples have been collected.

Additionally, the Region's Staff Statement of Position highlighted the limitations of the Sediment Profile Imaging ("SPI") survey with respect to assumptions about the presence or absence or biological communities. The Region's Staff Statement of Position did not discount the SPI survey data based on the fact that they were not collected by the Region, but rather highlighted that the SPI survey data were not collected to determine benthic exposure depth. The SPI data do not definitively show that benthic invertebrates do not utilize depths below 2 centimeters. Rather, the SPI data show heterogeneity in benthic topography (often greater than 2 cm).

The Region's Staff Statement of Position utilized research from other locations and habitats to highlight the range of variability in burrowing depths and behaviors of various freshwater

invertebrates. The reference to freshwater invertebrates that occupy different habitats (i.e., lake versus riverine habitats) does not invalidate the usefulness of those studies. As is common in scientific research, literature reviews are an integral component in generating questions, formulating testable hypotheses, and supporting findings. The studies cited by EPA show that different organisms burrow in response to multiple biotic and abiotic factors (e.g., predator avoidance, contaminant avoidance, oxygen availability, etc.). Benthic invertebrates from multiple aquatic systems vary in burrowing behavior, which suggests that there will also be variability in burrowing behavior among benthic invertebrates in the LPRSA. Note that the CPG's Statement of Position included reference to work on a fjord in Sweden.

Please note that CPG's June 23, 2016 letter refers to discussion in EPA's June 1, 2015 letter on the topic of the contaminant fate and transport model and the sediment transport model. EPA's June 1, 2015 letter does not define the dispute, but rather the CPG's June 12, 2015 letter does. Further, the Region's Staff Statement of Position devoted more than a page on this topic to provide context for the decision maker.

In response to the topic of a new sampling effort and an offer to finalize the "draft" Quality Assurance Project Plan ("QAPP"), please note that the CPG did not submit a draft QAPP in 2015, but rather QAPP worksheets. As described in the Region's Staff Statement of Position, while EPA was preparing written comments on the CPG's draft QAPP worksheets, the CPG submitted a letter taking issue with EPA's oral feedback on the QAPP worksheets and questioning EPA's basis for allowing any Partner Agency review of the proposed sampling program. The CPG's dissatisfaction with EPA's comments was central to the EPA Staff conclusion that the negotiation process was not working.